THE ZOOLOGIST

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Stray Notes from the Devonshire Coast.

By Henry Stevenson, Esq.

A new field of observation has ever its attractions for the naturalist, whether affording novelties for careful study or simply a repetition of familiar forms, whose habits, varying somewhat according to the nature of the locality, have still fresh interest for the close observer. Such, at least, was my experience last spring, during a short visit to Torquay and Teignmouth, and although, ornithologically speaking, that district afforded little that might not be found also on our Norfolk coast, yet even in the habits of some of the more common species, occasional peculiarities not seen elsewhere, struck me as worth recording in a few short notes.

Gulls, divers and other sea birds, necessarily forming the chief objects of attraction in such localities, I will for once reverse the general order of things, and commence with the common gull.

Common Gull (*Larus canus*). This species is here, as indeed on most parts of our coast, extremely numerous, and is met with at all times of the day on the river, being perhaps less of a sea gull than any of its tribe, especially in its habit of frequenting fields far inland, following the plough like rooks in search of worms and grubs. At low water these birds collect in large quantities along the course of the Teign, dispersing themselves in groups over the extensive sand-banks left bare by the tide, and freely mingling with their sable companions from adjacent rookeries, carrion crows and jackdaws, crowd the waters edge in search of food. The stream at this time being too shallow for the passage of boats, they are but little disturbed in their researches, and from long habit are perfectly indifferent to the presence of certain cockle-hunting females, who as regularly follow up the retiring waters to rake the shell-fish from their sandy beds. On a clear

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sunny day the appearance of these birds, dotted like white specks as far as the eye can reach, some wading or pitching into the shallow water, others pacing up and down or fluttering onwards to fresh ground, their white breasts glistening in the sun, gives to the whole scene an amount of life and animation that cannot fail to strike even the most indifferent. At high water numbers of them are seen hovering over the harbour, searching for any refuse thrown over from the boats and vessels, or rounding the "Ness Point," at the mouth of the river, in short flights out to sea; and, from their generally making up for this point as the sun goes down, I presume they roost amongst the neighbouring cliffs. The old birds up to the first week in April still carried more or less the gray markings on the head and neck peculiar to the winter plumage, but so varied in amount that scarcely two birds appeared alike. One or two young specimens also that I shot showed as much diversity of colouring, both above and below; in the gradual assumption of their dull dress. None of these had attained the scarlet eyelid, which gives so striking an appearance to the old birds, both of this and the kittiwake species, and the feet and legs were rather livid than green. The gape and whole inside of the mouth in the old bird is rich salmon-colour, but in the young dull green.

Kittiwake Gull (*Larus tridactylus*). The first pair of this elegant species I saw hovering over Torbay, and I afterwards met with several at different times whilst at Teignmouth. These birds seemed to mix but little with the common gulls, and frequented rather the seaward side of the "Bar" than the river, though probably wending their way upstream at low water. On the 25th of March I shot an old male and a young one just off the mouth of the river. The adult bird still carried a patch of gray on the hind neck, but was otherwise in full breeding plumage; the eyelids bright scarlet. The young one was a true "tarrock," having the bars on the wings and lower part of the neck behind, as well as the tips of the tail feathers brownish black; eyelids dark brown.

Greater and Lesser Black Backs and Herring Gulls. Just after my arrival at Teignmouth, it blew a perfect gale from off the sea for a day or two, which drove the larger gulls in great numbers into the harbour. Fine old birds of both greater and lesser blackbacks passed and repassed the long bridge, lazily floating on their wide expanse of wing, their pure "black and white" showing nobly in the sun. These, however, soon departed as the storm went down, and as soon almost as it was possible to take a boat up the river they had returned again to the "bosom of the deep," leaving only a straggler here and there amongst the younger birds. The herring gulls, both old and immature, continued to frequent the river at times, but the weather remaining calm the blackbacks, at least the adult birds, did not recross the "Bar," nor did I notice any, even out at sea. The thickness of the down and feathers as well as of the skin in these larger gulls is perfectly extraordinary, an ounce of number six, or even four, having little, if any, effect upon their natural armour, and it was not till I obtained some swan shot to mix with them that I succeeded in getting the specimens I required. On skinning a very fine young bird of the greater blackback, whose wing had been broken by one of the large pellets, I found some of the small shot literally rolled up in the down, never having entered the skin, and yet my gun, though a light one, shoots unusually sharp.

Blackheaded Gull (*Larus ridibundus*). A pair of these birds passed high over head on two occasions, coming from inland along the course of the river, but I never saw them amongst the other species: they probably have a breeding-ground somewhere in the neighbourhood. With reference to gulls generally I may add, that I found a prevailing impression in the minds of the fishermen of this coast, that the small gulls were the young of the large ones, and that the large brown (or immature birds) were "real old specimints" and parents of the great black and white ones. How far my explanations availed to correct these notions I cannot say, but they certainly received them with great doubt as to my veracity.

Crested Shag (*Phalacrocorax graculus*). Numbers of these birds frequented the sand-banks on the river at low water, just after the gale I have mentioned, sitting in rows of five or six by the water's edge, like soldiers "in rifle green," making a singular contrast to the white breasts of the various gulls. Though at a distance looking as if nothing could disturb them they seemed to know exactly how near was consistent with safety, and never gave me the least chance of a shot. Specimens are, however, occasionally obtained by lying in ambuscade behind the river wall at certain spots that they chiefly frequent: these birds, like the larger gulls, left soon after the storm, and only one or two appeared afterwards, at times on the mud.

Razorbill (*Alca torda*) and Guillemot (*Uria troile*). The razorbills were very plentiful off the coast, at times appearing within a stone's throw of the beach, but generally most numerous in the early morning or on fine afternoons with a calm sea. At these times it was a pretty sight, with a good glass, to watch the various groups preening their feathers as they floated over the rippling surface of the water, stretching themselves up now and then with a flutter of their wings, or playing that everlasting game of "heads and tails" that tries so sorely the skill and patience of the anxious sportsman. I generally found them in parties of three, consisting of two old birds and a young one, easily distinguished by its gray head, but occasionally lumps of eight or ten appeared, which separated as soon as ever chase was given. The extreme tenacity of life in these creatures, added to the great thickness of their skins and feathers, renders big shot indispensable; but even then it is doubtful when a "wobble" (the classical name applied to this species on the Devonshire coast) may be fairly considered bagged. Sometimes a successful shot turns up a fine old bird, who floats motionless on the water till the boatman pulls leisurely up to him. You lean over the side to snatch your prize, when, holloa! "Jack's alive again," and as your empty fingers close over the ripple, where his tail was last seen a gurgling croak comes back upon the ear with a sound not unlike "Walker." Lucky, indeed, if, after your consternation at such a scurvy trick, you ever get a second pop at your lively friend. Nor are they always yours though actually in hand, for I once picked one out of the water that I had just shot, and having no reason for doubting that he was what he seemed to be—quite dead—I laid him across one of the seats, on his back, by the side of the boat; I then began reloading and looking out for a fresh batch, when just as I had pointed out a likely lot to the fisherman, I heard a flutter, and on looking down was just in time to see the vanishing point of "wobble's" tail, as he left my care for ever. It is not generally difficult to obtain a first shot at these birds, but as soon as they become alarmed they commence diving most rapidly, keeping well together, coming up and going down with the most perfect precision. The longer the chase lasts the further they swim under water, coming up just to breathe, and showing at times only their beaks above water, and, as a last resource, they double back after diving and come up in quite another direction, where you least expected. At these times the shooting is anything but easy, from the violent motion of the boat, as the fisherman pulls with all his might after the birds, whilst a head and neck only presents a small mark to hit on the buoyant waves. Occasionally they dive after receiving the shot, and leave you with the impression of a decided "miss," when suddenly the bird floats up to the surface quite dead, having kept under water as long as life remained. The old birds at the end of March were in full plumage, the white line from the beak to the eye very distinct, the irides dark brown and the mouth inside rich yellow. The young birds of the previous year were still very gray on the sides of the head and round the throat, and the white line from the eye visible, but mixed with black; the beak, however, resembled the adults, having even the white groove quite perfect. I saw but very few guillemots, or "mairs" as they call them, and those generally single birds in the river or harbour, but never got a shot at one. I certainly expected to find more of them than of the razorbills. Once or twice off the coast one of the large divers also made its appearance, a young bird, but of which species I could not make out, as it kept at a most respectful distance.

Crested Grebe (*Podiceps cristatus*). I was somewhat surprised to find these birds not only in the tranquil waters of the bay at Torquay, but also out at sea, off the coast at Teignmouth. Always associating them with the still waters of our Norfolk broads, where they remain nearly all the year round, only making towards the sea when their usual haunts are closed by the ice, I had no idea that they could accommodate themselves so closely to the habits of the more strictly marine divers. On one occasion I saw a party of three, apparently an adult pair and a young bird, having no perceptible crest. The old male was a most splendid specimen, with about the finest crest I ever saw, and as I watched him, through the glass, between the intervals of diving, the silky whiteness of his neck and breast contrasting with the rich chesnut fringe, glistened in the sun as he rose and fell on the rippling waves. I afterwards saw single birds, even in rough weather, diving into the large billows, or floating lightly over others, as much at home on the "troubled sea" as the guillemots or the razorbills. Whether it is usual or not to find this species on the Devonshire coast at this season (between March and April) I am not aware; Yarrell speaks of them as having been "seen occasionally in Devon and Cornwall," which would imply that they are not very common at any time, but certainly the mildness of the weather afforded no clew as to their motive for preferring the "sea-side" in this instance to the quiet waters of the "Teign."

Water Ouzel (*Cinclus aquaticus*). I had the pleasure of seeing this species for the first time in a wild state, being only a very rare visitant to the Eastern counties, but certainly in a locality where I least expected to meet with it. A single bird frequented the bathing cove at Torquay, where for several days I observed it flitting across the little bay, from one range of rocks to the other, flying low over the waves as they broke on the shingly beach, and perching every now and then on the huge stones that form the breakwater jutting out into the sea. I had not expected to find the water ouzel so near the coast, but certainly a more quiet, secluded spot could scarcely be found, and the waters of the bay seemed tame in comparison with the rapid streams of the north, where, amidst the foam and splash of the torrent, are the usual haunts of the dipper.

Rock Pipit (*Anthus obscurus*). This species in Devonshire appears to take the place of the meadow pipit on the Eastern coasts, frequenting the grassy slopes by the sea, and the rocks at low water left bare by the tide. Here they flit noiselessly from one weed-covered stone to another, searching the little hollows between for insect life, or, running along by the edge of the water, dart at the sand-flies as they rise from the beach. These birds are readily distinguished from the common titlark by their larger size, and the more sombre tint of their plumage. The note is also louder, and their manner of walking struck me as peculiar, for though so plentiful in this district I watched them with much interest, being so rarely seen in Norfolk, and then chiefly in winter.

Pied Wagtail (*Motacilla Yarrellii*), Wheatears (*Sylvia œnanthe*), &c. The Denes at Teignmouth were a favourite resort for the pied wagtails, several pairs being seen at all times of the day, moving along the green, or chasing each other in rapid flights over the sand-banks to the beach below, but, although watching them very closely, I was unable to identify a single white wagtail (*M. alba*) amongst the number of the common species. On the morning of the 20th of March, a most undoubted arrival of migratory specimens appeared, the slopes in front of the sea being quite covered with them. So unusual was their appearance in such quantities, and so tame did they seem, that every one was stopping to look at them, but by the next day this flight had passed on, and only a few pairs, as usual, remained by the sea. The same thing also occurred a few days later with the first flight of wheatears, which remained for a day's rest, and then, to a bird, disappeared on their way inland to spread themselves over the country.

H. STEVENSON.

Norwich, November 28, 1859.

Notes on the Queleli, a rare Bird of Sonora; the King of the Zopilotes; and Bartram's Vulture. By A. S. TAYLOR, Esq.*

The Queleli.—From the descriptions of three of our friends, we are placed in possession of some curious facts relating to the habits and characteristics of this rare and highly curious bird, a member of the condor or sarcoramphus family of Dumeril, which we have not been able to find described or alluded to in any of the books on Natural History in our possession; and it may be that it is a species unknown to naturalists.

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* Written for the 'San Francisco Herald,' and sent by the Author for publication in the 'Zoologist.'

An intelligent Sonoranian of Oquitoa, near Alta in Sonora, who resided in California several years, gave me the following facts, in relation to this curious bird. It inhabits particularly the Pimaria, Alta and Baja, the Papagoria, the Opataria, the Apacharia, and other Indian and little-known mountain districts of Sonora, Durango and Sinaloa to the East and South, and it is very rare even in these countries. It is called Queleli by the Papago Indians, who have a great veneration for it. Its weight is from eight to ten pounds. The beak is hard, short, and curved sharply down, its colour bright lemon, the iris of the eye pink or light red. On the crown of the head it has a fleshy caruncle, or comb, of black and white, which forms like a cravat, and also hangs on both sides of the head, and which is bare of feathers; the skin of the chops or cheeks is mottled black and white; the neck-feathers are black, with a ring of white feathers below forming a ruff, like a circle of swan's down on a lady's tippet; the back is striped black and white lengthwise of the bird; the upper part of the wings is also striped with black and white; the ends of the wing-feathers are tipped with white; the tail-feathers are striped and tipped the same as the wings; the under surface of the wings is barred also in the same way; the wings measure from 12 to 18 inches long from the joint at the body. The chest, belly and lower part of body are of lemon-coloured feathers; the legs and feet are also yellow, with four toes armed with black and very sharp claws.

The female bird is of smaller size, the colour similar but more subdued. The eggs are reddish and mottled black, sharply peaked, and weigh about two ounces. They make their nests in the highest trees of the mountain sides and peaks, and always go in couples, never in flocks. When they rise from the ground they make a whirring, rushing noise, moving very fast; they are very rare throughout Sonora, as my informant states, and extremely difficult to take. They raise two young in a year, generally male and female. When young their plumage is yellow, black and white. The full-grown birds are about the size of the common Turkey buzzard. In six months the young begin to fly. The females lay their eggs in the spring. They are seen at times turning over and over in the air in quick motions, from whence the Indians have a superstition that they breed in the air. The Indians also say that the male bird breaks the egg to let the chick out.

They eat dead animals or those recently killed. The tongue is red, and has a spinous process on its under part, shaped like a pen, and said by the Indians to be used in making a loud whirring noise when it rises from the ground. They eat very fast, and all other carnivorous birds hold them in great fear. My informant aforesaid, who has travelled throughout Sonora and seen them in different localities, says they are most abundant in the Alta Pimeria, of which the Gadsden purchase forms a portion.

But the most singular part of the bird, and that which makes it such a wonder among the Sonoranians, is that it appears to have four wings, or appendages, used for assisting flight, on each side of its body; that is, a pair of wings like those of other birds, each with three assistant wings or winglets joined to the main one, and folding under the main ones, and next to the body.

An officer of the Revenue Service assured me, on two occasions, that he had seen this bird at Guaymas in Sonora, in 1854, in possession of Capt. Spence, Captain of the Port, that they were so scarce as to sell for fifty dollars a piece, and that, according to his recollection, my Sonoranian informant was in the main correct in his description of it. This latter informant was well known to me; he lived several years around Monterey, and left for Sonora in the latter part of 1857; his description was taken down by myself, at Monterey, in November and December, 1855, and, being confirmed by the officer before mentioned, who is an old acquaintance of mine, it seems to me there can be no doubt that the bird is a *rara avis* unknown to naturalists.

A gentleman now living in Monterey, who is, like the writer, an amateur naturalist, assures me also that, in a voyage he made to Guaymas and the California-Gulf ports in the summer of 1854, he saw a bird of this kind in Guaymas, most likely the same one, in the possession of Captain Spence or some other foreigner there, but that it afterwards died, and, from its extreme rarity and beauty, was considered a great loss, as it was brought from far in the interior.

According to this informant, who read, a few days ago, the notes I had taken down in 1855, he can only remember the size, colour of the cheeks, and the singularity of the wings. The size is the same as I have stated, but the colour of the cheeks (which he thinks are feathered) was yellow. The number of the winglets was three on each side of the bird, and not four, as stated in my memoranda.

One of the winglets is attached to the main wing on the outside by a flexible joint, and the other winglet is attached to the under part of the main wing in the same manner. These extra wings are only seen when the bird opens its wings in rising, or when at a short distance from the ground; but when standing at rest they are folded so as not to be noticed. The under winglet, when flying, is extended beyond the main wing; but the upper winglet is smaller, more compact, and closer to the body; both of these winglets being opposite to the wing-joint of the body at the base of the neck. The bird he represents is as beautiful as it is curious, and, as all three informants state, much sought after and highly prized in Sonora. It seems that only two or three specimens have ever been known to be captured, which may account for its not being mentioned in any of the books on hand in California.

This bird may be taken by some readers as only a description of the Mexican small vulture, called the king of the zopilotes; or the small condors of the Laplata pampas, called the king of the vultures, or king of the condors; or the Sarcoramphus sacer, or sacred vulture of Bartram. But, from the descriptions of these rare birds, which we give herewith for ready comparison, it will be seen that there are many points of material difference between them.

King of the Zopilotes. "The Cozcaquahtl is called, by the Mexicans of the city and valley of Mexico, the king of the zopilotes, or king of the Turkey buzzards; and they say that when these two species happen to meet together over the same carrion, the zopilote which is found in all the climates of Mexico, never begins to eat till the other bird has tasted it. They are both mute, and sometimes fly together. The king of the zopilotes is larger than the zopilote, has a red head and red feet, with a beak of a deep red colour, except towards its extremity, which is white; it is much scarcer than the zopilote, and is peculiar to the warm climates alone. Its feathers are brown, except upon the neck and parts about the breast, which are of a reddish black. The wings are of an ash-colour upon the inside, and upon the outside are variegated with black and tawny. Bomare says that the Aura (pronounced Owra, for the Turkey buzzard, by the Mexicans) is the Cosquath of New Spain, and the Tropilot of the Indians; so that Cozcaquahtl and Tropolotl are both native Mexican-Indian names for two different birds. But the bird which now goes by the name of the king of the zopilotes, in New Spain, seems different from the one which we are describing. This is a strong bird, of the size of a common eagle, with stately air, strong claws, fine piercing eyes, and a beautiful black, white and tawny plumage. It is particularly remarkable for a certain scarlet-coloured, fleshy substance, which surrounds its neck like a collar, and comes over its head in the form of a little crown.

"I had this description of the bird from a person of knowledge and veracity, who assures me that he has seen three different individuals of this species, and particularly that one which was sent from Mexico in 1750, to the Catholic king, Ferdinand the Sixth. He further informs me that there was a genuine drawing of this bird published in a work called the 'American Gazetteer.' The Mexican name Cozcaquahtl, which means 'king eagle,' is certainly more applicable to this bird than to the other. The figure in our Plate (p. 74) is copied from that of the 'American Gazetteer." (See Clavijero's 'History of Mexico,' 1790, Cullen's translation, Philadelphia, 1804, vol. i. p. 65, and notes).

On showing the engraving in Clavijero's volume to my Sonoranian friend, he readily recognized it as the king of the zopilotes, which he well knew; but it was not the Quilele condor, or vulture of Sonora.

The King of the Vultures, or King of the Condors of the Pampas (*V. Papa of Linneus*). "This bird is larger than a male turkey; the skin of the head rises from the base of the bill, and is of an orange colour, from whence it stretches on each side of its head, from thence it proceeds like an indented comb, and falls on either side according to the motion of the head; the eyes are surrounded by a red skin of a scarlet colour, and the iris has the colour and lustre of pearl. The head and neck are without feathers; they are covered with a flesh-coloured skin on the upper part, a fine scarlet behind the head, and a duskier-coloured skin before; further down, behind the head, rises a little tuft of black down, from whence issues, and extends beneath the throat on each side, a wrinkled skin of a brownish colour mixed with blue, and reddish behind; below, upon the naked part of the neck, is a collar, formed of soft, longish feathers, of a deep ash colour, which surround the neck and cover the breast before. Into this collar the bird sometimes withdraws its whole neck, and sometimes a part of its head; so that it looks as if it had withdrawn the neck from the body. These features of beauty suffice to distinguish this bird from others of the vulture tribe. With all its beauty, its food is the same as the others,—offal, rats, lizards and serpents,—and the flesh is entirely uneatable." (See Oliver Goldsmith's 'Animated Nature,' vol. ii. p. 44, and fig. 1 of Plate 16, Whitlaw's Glasgow edition, 1840).

The Sarcoramphus sacer of Bartram, or Sacred Vulture. "This bird was described by John Bartram, in his 'Travels in the Carolinas and Florida' (Philadelphia, 1791), as abundant in Florida then, but has not been observed or identified anywhere since his time. This has tended to throw a doubt on its existence; but recent information renders it probable that this, or at least a different one from the vultures just described, is found about Lake Okechobee, in Southern Florida, where it is called the king buzzard. The verification of this statement by actual specimens would be one of the most important discoveries yet to be made in North American Ornithology. The following is Bartram's description:—'Bill long, and straight almost to the point, where it is hooked or bent suddenly down, and sharp; the head and neck bare of feathers nearly down to the stomach, when the feathers begin to cover the skin, and soon become long and of a soft texture, forming a ruff or tippet, in which the bird, by contracting his neck, can hide that as well as his head; the bare skin of the neck appears loose and wrinkled, and is of a bright yellow colour intermixed with coral-red; the hinder part of the neck is nearly covered with short, stiff hairs, and the skin of this part of the neck is of a deep purple colour, gradually becoming red as it approaches the yellow of the sides and fore part. The crown of the head is red; there are lobed lappets, of a reddish orange colour, which lay on the base of the upper mandible. The plumage of the bird is white or cream-colour, except the quill-feathers of the wings, and two or three rows of the coverts, which are beautiful dark brown; the tail, which is rather large and white, is tipped with this dark brown, or with black; the legs and feet are of a clear white; the eyes are encircled with a gold-coloured iris; the pupil is black.'" *Vide* Mr. John Cassin's Notes on the Raptorial Birds, in vol. ix. p. 6, of the 'Pacific Railroad Reports,' published by order of Congress (October, 1858), 1004 quarto pages, and altogether on the birds collected by the railroad and other Government expeditions since 1853. This volume, and the eighth volume of the same work on animals, were compiled by Prof. Spencer F. Baird, of the Smithsonian Institute, and are as much a high honour to the Government which provided the materials, through its laborious and intelligent military and other officers, as they redound to the eminent learning, labour, assiduity and honourable name of Baird. But in nothing is Prof. Baird more original than in his plan of these two volumes,—in the fairness, equity, and justice of acknowledging every donor, benefactor or assistant, and in the perspicuity and simplicity of the language. We believe there are no two such books on Natural

History in the world, though they seem to us susceptible of great improvements in matter and plan, like every other old or new thing. The persons who assisted Baird, both Government and otherwise, certainly are placed in a more honourable and proper light than in any work of the kind, American or European, which has come under our notice. It is certainly a model to other *savans* and writers, American and European, who have not been too often wont to make acknowledgments to California for what seemed to the uninitiated outsiders as their own original gatherings, their own original thoughts, abstracted without acknowledgment, and put in so quietly that one could hardly recognize their own brain-work or handiwork.

King of the Zopilotes, and Bartram's Vulture. — Conversing recently on these two rare, curious and costly birds, with a friend who had resided in Florida several years, he says the description by Bartram of the king buzzard, as quoted in vol. ix. of Rail. R. Reports, is correct. He has seen them several times around Lake Okinochobee, and other parts of South Florida; also in Texas on the coast, and on the frontiers near Mier; he has also seen them near Vera Cruz. They are very scary and shy, and very rare to find in Florida now, on account of the Indian wars since 1830, and the firing of ordnance and muskets; but they used to be very numerous once. Of late years they have flown off to the more unfrequented continental countries of the Gulf of Mexico, not far from the sea; and it is very rare to see more than one or two at a time. He has never noticed the female or seen the eggs.

This gentleman, after reading Bartram's account, says it is the same bird as the king of the zopilotes, depicted in Cullen's 'Clavijero,' which he recognised immediately; and that if there is any difference in feathers, appearance or size, it must be owing to the age or sex of the bird, the season of the year, or changes in its plumage. He has seen the bird also on the west coast of Mexico, and quite numerous around Manzanillo and Colima. At Colima he has had them offered to him for two dollars and a half a piece.

But this opinion cannot prevail against observations of the future, taken on the spot by scientific ornithologists. At any rate, this gentleman's remarks are highly valuable and suggestive. As he is a medico, as well as a great traveller by sea and land, and knows California from Shasta to San Diego, by land as well as by water, with a ten years' experience, and has made several trips along the Mexican and Central American coasts, and travelled pretty extensively in those countries on business, his testimony is worth a great deal, though he makes no claim to being a naturalist.

Doubtless further accounts of the more rare birds and animals of North America could be found in the American and European printed books of travel and history, on the southern sections of the United States and Mexico and Central America, which have been published in England, France, Germany and the United States, since the advent of the Spanish revolutions of 1820. The old Spanish missionary writers prior to 1800 also contain valuable observations on the Natural History of Spanish America, very little known seemingly among the learned men of Europe and the United States. California has brought to new light the great value of the literary and zealous labours of the old Catholic *padres*. What would the people of California have done for provisions in 1849 and 1850 if the friars had not provided for them 500,000 head of cattle and 30,000 horses? They would have starved like Jacob's family. The priests proved the zoological, fruital and agricultural value of California for seventy years.

A. S. TAYLOR.

Monterey, April 7, 1859.

Notes on Birds observed in Herefordshire.—During a visit to Herefordshire in the autumn of this year I had frequent opportunities of noticing that the country abounded in many birds which are comparatively rare in other countries, although my visit was not made at the best season for ornithological observations, especially as regarded our summer residents, they having then nearly all disappeared. Amongst others, the missel thrush, called by the country people the "stretch," is met with in great numbers; indeed it appears even more common than the song thrush, though the latter is also plentiful. The ring ouzel or mountain blackbird, the rarer great gray shrike (*Lanius excubitor*) are, I was informed, tolerably numerous, but at the season of my visit they had probably migrated, as I did not see either of them. Of the larger birds, I observed hawks, jays, magpies, and last, though not least, at all events in brilliancy of colour, the gay-plumaged green woodpecker (*Picus viridis*) or "ecle," which is the name it is there known by. Rarely did I go abroad, especially on a dull, gloomy day, without hearing its merry startling laugh (believed there to prognosticate rain) ringing through the woods or in crossing the large orchards, so common in that part of the country; seeing it, cat-like, supporting itself on the trunk of an old apple-tree, peering cautiously around it from time to time, and then, on the least intimation of danger, winging its short ungainly flight, dropping and then rising as it speeds its way to some secure retreat. So wary are these birds that, although I so frequently saw them, I did not succeed in procuring a specimen, as they would not allow me to get sufficiently near them for that purpose: prompted no doubt by an instinctive knowledge that their gay appearance renders them more conspicuous than the rest of their species, they generally select an isolated tree with no cover close enough to conceal an approach, the green and yellow of their backs contrasting vividly with the dark bark as they climb the trees in quest of their insect-food. The nuthatch (*Sitta europea*) or "French magpie," as it is there called, was also said to be abundant, but I only observed two on the same morning in an orchard adjoining the house, and should probably have overlooked them had I not been attracted by their curious note. Very fine specimens of the elegant gray wagtail (*Motacilla boarula*) as well as the common pied variety frequented the roofs of the house and outbuildings. On the banks of the "Wye" the kingfisher is seen in considerable numbers, also the common sandpiper or summer snipe, moorhens, and occasionally herons, and, as I was informed, the water ouzel (*Cinclus aquaticus*), though I did not see the latter there; I was, however, more fortunate nearer home: as I was strolling, gun in hand, early one morning in search of woodpigeons, on the elevated bank of a small stream about one hundred yards from the house and close to a miniature waterfall, I heard a wild, sweet note sounding clear above the rushing of the water and echoing back from the overhanging banks; my curiosity being aroused, determined me, if possible, to discover the songster. I accordingly descended, and by means of a rustic bridge crossed the brook: immediately on my doing so a bird flew out of the opposite bank, shooting down the stream and reminding me somewhat of the flight of the kingfisher; at first I was taken by surprise, but succeeded in shooting it, and found it to be a very beautiful specimen of this singular bird, which I had vainly endeavoured to procure on the banks of the river. As to our rarer visitors, I fear my stay was not sufficiently prolonged to give me an opportunity of observing them, nor did I succeed in obtaining any reliable information respecting their appearance.—*John Henry Belfrage; 7, New Inn, Strand.*

Ornithological Occurrences in Norfolk.—An immature male eider duck was shot at Blakeney, on the 25th of October. The feathers on the breast of this specimen exhibit the earliest state of change from the plumage of the female, each feather being barred with black and white and tipped with brown, the dark fringe partly concealing the brighter tints, giving a curiously mottled appearance. Another male, in the same state of plumage, was more recently obtained at Yarmouth. On November 11th, a fine old male of the hen harrier was killed at Ranworth, and about the same time an adult female was winged and taken alive, at Horning, in the same neighbourhood. The latter bird, very probably the mate of the Ranworth specimen, is now in the aviary of J. H. Gurney, Esq., at Catton Park. These birds were formerly very plentiful in our marshes, but — from extensive drainage and other causes — have, with their kindred species, become more and more scarce, the adults, especially, being very rare. I had never before the pleasure of handling a recently-killed specimen of the old hen harrier in its delicate blue and white dress, although Montagu's harrier, in the same stage of plumage, occurs from time to time. A female velvet scoter was shot on November 14th, at Yarmouth, and a single specimen of the little auk was lately picked up alive in a ditch in this neighbourhood. This is the only one of these storm-driven wanderers that I have heard of this season. Peregrines, chiefly young birds, and ospreys, have been more numerous than usual on our coast during their autumnal migration; a curious light variety of the former, a young female, bearing much resemblance about the head to the "Saker falcon," was killed at Ranworth. Several fine specimens of the hawfinch have been met with in various parts of the county, and that irregular visitant in sharp winters, the Bohemian waxwing, has appeared in several instances. I have already seen four beautiful specimens from different districts, and others have been seen. With the exception of a solitary straggler or two, these birds have not visited us in any quantity since the winter of 1849—50, when such large numbers occurred along the whole line of our eastern coasts, as noticed in the 'Zoologist' at the time.—*H. Stevenson; Norwich, Dec.* 15, 1859.

Rare Birds at Scarborough.—I have had the following birds brought in to be preserved lately. The Egyptian goose (*Anser ægyptiacus*), a very beautiful specimen, shot out of a flock at Filey. The little gull (*Larus minutus*), in its immature plumage. The little auk (*Uria alle*), also shot at Filey. The pinkfooted goose of Bartlett (*Anser brachyrhynchus*), shot at Hunmanby.—*Alfred Roberts; King Street, Scarborough, December* 5, 1859.

Sport at the Scilly Isles.—The result of the shooting of a few friends of the Lord Proprietor of the Scilly Isles, who have been staying with him during the past month, has been the bagging of one hundred and fifty-two snipes and ninety woodcocks. Several long-eared owls, a merlin falcon, purple Tringæ, cirl buntings and brambling finches have been observed on the Islands.—*Edward Hearle Rodd; Penzance, December* 10, 1859.

Occurrence of Rare Birds at Eastbourne, Sussex.—Some rather rare birds have visited this delightful watering-place this season. On the 25th of April last a fine hoopoe (*Upupa epops*) was seen several times at Compton Place, the seat of the Hon. Mrs. Cavendish. On the 3rd of September I saw, in the flesh, a most beautiful wheatear (*Sylvia œnanthe*), pure white, with pink eyes,—in fact, a perfect albino,—which was shot by a coast-guard man here. Dartford warblers (*Sylvia provincialis*) are always to be met with in the furze growing on the hills (downs), and a short time ago I found two, one of which I shot. On the 3rd of November a particularly beautiful snow bunting (*Emberiza nivalis*) was shot close to the town, and purchased by Mr. A. Vidler, the naturalist; he also has seen two more within these few days. On the 5th of December a fine Norfolk plover, or thick-kneed bustard (*Œdicnemus crepitans*), was caught alive in a field just below my garden, and which I added to my collection. A large eagle (probably whitetailed) was seen, on the 16th instant, by a coast-guard man, at Birling Gap, sitting on the beach, and which flew to the westward: one is generally seen here in severe winters. Many goldeneyed ducks (*Anas clangula*) have been shot during this severe weather, at a place called the "Crumbles." A hawfinch (*Fringilla coccothraustes*) and brambling (*F. montifringilla*) were shot yesterday, close to my house. I saw to-day (among a flock of larks) two snow buntings; they were easily distinguished by the preponderance of white in their wings.—*J. Dutton, Consulting Ornithologist; South Street, Eastbourne, Sussex, December* 18, 1859.

Occurrence of the Great Ashcoloured Shrike (Lanius excubitor) *in Aberdeenshire.*—A most beautiful adult male specimen of the above bird was killed by a young man, near Hatton Castle, on the 28th of October last. Attention was attracted to it by an unusually large number of small birds, fluttering and screaming round the place where it was taken,—a garden hedge or enclosure. It was quite tame, at least, it suffered the young man to approach several times very near before it sought to fly. When it was shot it uttered several times a rather loud note, resembling the words "stack, stacks." It was sent to me for identification, as also for preservation,—and I must say that it was very full in flesh,—besides the one recorded by me in the 'Zoologist' for April last as being found at Drummuir, Banffshire. The stomach contained a small ball of what seemed to be the hair and bones of a mouse or mice, with portions of the elytra of beetles. These are two which have been met with this year, within, perhaps, thirty miles of each other; and very strange indeed it would be if they were the only two that had sojourned here; yet it might be. But perhaps we shall hear more of the subject by and by, as the people in this quarter are becoming more alive to these matters than they were fifty years ago.—*Thomas Edward; Sub-curator of the Museum, Banff, December* 5, 1859.

Occurrence of the Great Ashcoloured Shrike (Lanius excubitor) *in Cambridgeshire.*—Cambridgeshire has once more been visited by a fine male specimen of the great ashcoloured shrike; it was shot at Histon, on the 5th of November; it was accompanied by a female. I have a specimen, procured about three miles from the locality named some five years since, shot on exactly the same date, *viz.* November 5.—*S. P. Saville; Panton Place, Cambridge, November* 23, 1859.

Another Occurrence of the Ashcoloured Shrike in Cambridgeshire.—Again (for the second time this season) I have the pleasure of recording the capture, by a boy, of an ashcoloured shrike, in a close near Newmarket, on the 25th of November. This locality is much further on the eastern side of the county than any in which I ever knew of its being shot before.—*Id.; December* 10, 1859.

Disappearance of Swallows and Martins.—In the December number of the 'Zoologist' (Zool. 6779), under the above heading, I see the latest date is the 24th of October. Colonel Newman asks, Is it usual for them to stay so late? I can inform him that I myself have made a similar observation, as respects their late stay this year in this locality: swallows and martins were seen as late as the 31st of October, which occurrence was unusual; they generally depart about the beginning of October; sometimes, in wet, cold autumns as early as the 15th or 20th of September.—*Id.*

Late Stay of Martins.—In the last number of the 'Zoologist' (Zool. 6779), there is a notice of the appearance of martins so late as the 24th of October. They were fully as late in the neighbourhood of Bridgwater: on the 25th several were flying around my house during a heavy rain, dashing about with great animation and apparent enjoyment. I saw a solitary one on the 29th, which was the last that I saw or heard of.—*Thomas Clark; Halesleigh, December* 15, 1859.

Occurrence of the Alpine Swift (Cypselus alpinus) *in Cornwall.*—A few weeks since a capital specimen of this rare species of swift was obtained in the parish of Mylor, near Falmouth. The bird has passed into my hands, and as far as I can judge, it is an adult bird. The whole of the upper parts are of a dull brown, and the under parts similar to the descriptions given by authors. The length from the carpal joint to the end of the quill feathers, about 8½ inches. I rather think that it is not the first instance of its occurrence in Cornwall, as Mr. R. Q. Couch has more than once told me that his father obtained a specimen at or near Looe, some years since, but whether the bird was preserved by the late Mr. Jackson, and formed a part of his collection I do not know.—*Edward Hearle Rodd; Penzance, December* 1, 1859.

Occurrence of the Black Redstart (Sylvia tithys) *and of the Whinchat* (Sylvia rubetra) *in December, near Dublin.*—Yesterday (December 13th), when on the beach, near Killiney, Co. Dublin, my attention was drawn to a bird about the size of a stonechat, which perched within three or four yards of the rock on which I was sitting. When first attracted to him, his breast was turned towards me and seemed to me much darker and sootier in colour than that of a stonechat; his manners too, differed from those of that species, and on his expanding his wings, I remarked that the white was much less in extent: while still in doubt as to his precise species,—although he reminded me much of the redstarts, as I had seen them in Devon and Kent,—a pugnacious robin, on whose territory the stranger had intruded, approached and mobbed him, and immediately on his taking flight his fiery tail left no doubt of his genus. At the time I had no gun, and therefore was obliged to content myself with observing him for nearly three quarters of an hour, which he gave me abundant opportunity of doing, alighting at times within three feet of me, and so enabling me to note his colours; he flitted along from stone to stone, occasionally taking a flight towards the edge of the wav[illegible] and there alighting on the wet sand (the tide was advancing), he pecked for some moments among the *débris* left by each receding wave. He would then, on my too close approach, fly back to the rocks and stones which here cover the railway embankment. The robin, before alluded to, still continued pursuing and mobbing him, and, after awhile, was joined in his amusement by a well-marked specimen of the whinchat (*Sylvia rubetra*), which, in like manner, mobbed the redstart. It was rather a singular conjunction, meeting two summer birds together on a cold December day. I have before, however, seen the whinchat on these cliffs in the winter on more than one occasion, and shot a specimen here on the 12th of December, 1847. On the following day I went out to try and procure one, if not both specimens, I failed, however, in obtaining more than one tail-feather of the redstart, which, by its uniform flame-colour, left no doubt as to the species, when taken in conjunction with the white band on the wing. There appeared to be a pair of the redstarts, both males, and one much bluer in the breast than the other. Where did they come from, or what were they doing there on a cold, snowy December day? The cliffs here are covered with furze and brake, and face the south-east. Stonechats abound here at all seasons.—*J. R. Kinahan; 51, Stephens Green, Dublin, December* 14, 1859.

[I cannot quite agree with my friend, Dr. Kinahan, in regarding the black redstart as a summer bird. I find from thirty to forty notes of its occurrence, and they are in the proportion of six to one in the winter: it is an uncommon bird in this country.—*E. Newman*].

Occurrence of the Nutcracker (Nucifraga caryocatactes) *at Wisbech.*—A fine male specimen of this rare bird, in full plumage, was shot in a plantation at the Black Sluice, a short distance from this town, on Tuesday, the 8th of November inst. On dissection, it was found that its food, while in this country, consisted of small Coleoptera. It has been preserved for the Wisbech Museum. — *T. W. Foster; Wisbech, November* 16, 1859.

*Notes on the "Mooruk."** By GEORGE BENNETT, Esq.

(From the 'Proceedings of the Zoological Society').

ON the 26th of October, 1858, the "Oberon" cutter of forty-eight tons arrived in Sydney, having two fine young specimens of the mooruk on board, stated to be male and female. On going on board I found them confined in a very small space, and the captain informed me he had had them eight months, that he procured them soon after his arrival at New Britain for Sydney, and since that time had been trading about the islands, having these birds on board. They were fed principally on yams. I observed they were in poor condition, but healthy in appearance, and plumage in good order. They were about half the size of the specimen sent to England; but one, apparently the male bird, appeared a little larger than the other. Captain Deolin informs me that the natives capture them very young, soon after they are hatched, and rear them by hand. The natives rarely or never can capture the adult bird, as they are so very shy and difficult of approach —the native weapons being ineffectual against so rapid and wary a bird. These birds are very swift of foot, and possess great strength in the legs. On the least alarm they elevate the head, and, seeing danger, dart among the thick brush, and thread about in localities where no human being could follow them, and disappear like magic. This bird, with its strong legs and muscular thighs, has an extraordinary power of leaping; it was from this circumstance the first bird brought from New Britain was lost. From its habit of leaping, it one day made a spring on the deck, and went overboard; as it was blowing a strong breeze at the time the bird perished. In warm weather, the captain informs me, they are fond of having a bucket of salt water thrown over them, and seem to enjoy it very much. I succeeded in purchasing these birds; and Captain Slater (the present commander of the "Oberon") brought them to my house in a cab, and when placed in the yard they walked about as tame as turkeys. They approached any one that came into the yard, pecking the hand as if desirous of being fed, and were very docile. They began by pecking at a bone in the yard, probably not having tasted any meat for some time, and would not, while engaged upon it, touch some boiled potatoes which were thrown to them; indeed, we found afterwards they fed better out of a dish than from the ground—no doubt, having been accustomed early to be fed in that manner. They were as familiar as if born and bred among us for years, and did not require time to reconcile them to their new situation, but became sociable and quite at home at once. We found them next day rather too tame, or, like spoiled pets, too often in the way. One or both of them would walk into the kitchen; while one was dodging under the tables and chairs, the other would leap upon the table, keeping the cook in a state of excitement; or they would be heard chirping in the hall, or walk into the library in search of food or information, or walk up stairs, and then be quickly seen descending again, making their peculiar chirping, whistling noise; not a door could be left open, but in they walked, familiar with all. They kept the servants constantly on the alert; if the servant went to open the door, on turning round she found a mooruk behind her, for they seldom went together, generally wandering apart from each other. If any attempt was made to turn them out by force, they would dart rapidly round the room, dodging about under the tables, chairs and sofas, and then end by squatting down under a sofa or in a corner, and it was impossible to remove the bird, except by carrying it away. On attempting this, the long, powerful, muscular legs would begin kicking and struggling, and soon get released, when it would politely walk out of its own accord. I found the best method was to entice them out, as if you had something eatable in your hand, when they would follow the direction in which you wished to lead them. They sometimes also give a smart kick to any person attempting to turn them out forcibly. The housemaid attempting to turn the bird out of one of the rooms, it gave her a kick and tore her dress whilst she was very politely driving him before her. They walk into the stable among the horses, poking their bills into the manger. When writing in my study, a chirping, whistling noise is heard; the door which was ajar is pushed open, and in walk the mooruks, who quietly pace round the room, inspecting everything, and then as peaceably go out again. If any attempt is made to turn them out, they leap and dodge about, and exhibit a wonderful rapidity of movement, which no one would suppose possible from their quiet gait and manner at other times. Even in the very tame state of these birds, I have seen sufficient of them to know that if they were loose in a wood it would be impossible to catch them, and almost as difficult to shoot them. One day, when apparently frightened at something that occurred, I saw one of them scour round the yard at a swift pace, and speedily disappear under the archway so rapidly that the eye could hardly follow it, upsetting all the poultry in its progress, as they could not get out of the way. The lower half of the stable door, about four feet high, was kept shut to prevent them going in; but this proved no obstacle, as it was easily leaped over by these birds. They never appeared to take any notice of, or be frightened at, the jabiru or gigantic crane, which was in the same yard, although that sedate, stately bird was not pleased at their intrusion. One day I remarked the jabiru spreading his long wings, and clattering his beak opposite one of the mooruks, as if in ridicule of its wingless condition. Mooruk, on the other hand, was preening its feathers and spreading out its funny little apology for wings, as if proud of displaying the stiff horny shafts, with which they were adorned.

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* The mooruk (*Casuarius Bennettii*) is a newly discovered bird, allied to the cassowary.—*Edward Newman.*

The mooruks often throw up all their feathers, ruffling them, and then suddenly fall flat as before. They appear to have great power in raising all the feathers, and the wings are used to aid them in running, but never seem used for defence. Captain Deolin says the natives consider them, to a certain degree, sacred, and rear them as pets. He is not aware that they are used as food, but if so not generally; indeed, their shy disposition and power of rapid running, darting through the brake and bush, would almost preclude their capture. It reminds me (from the description) of the habits of the menura, or lyre bird of Australia, only it is much larger, and more powerful in its actions. The natives carry them in their arms, and are very kind to, and have a great affection for them; this will account for their domesticated state with us.

The noise of these birds, when in the yard, resembled that of the female turkey; at other times the peculiar chirping noise was accompanied by a whistling sound also. The contrast of these birds with the jabiru was very great. The mooruks were sometimes moving about, like the female turkey, in rapid motion or excitement, or, when walking quietly, always inquisitive, and poking their beaks into everything, and familiar with every person. The jabiru, on the other hand, was a perfect picture of sedate quietness, looking upon all play as injurious to his constitution or derogatory to his dignity, remaining stiff in his gait and serious in his demeanour.

Only one egg was brought, and that was partly broken; I have it in my possession. The captain informs me that they can be procured from the natives, and have generally a hole in them, about the size of a shilling, through which the contents have been extracted.

The height of the largest or male bird to the top of the back was 2 feet 2 inches; and of the female 2 feet. The height of the largest or male bird, when erect, to the top of the head, was 3 feet 2 inches; and of the female 3 feet.

Occurrence of the Gray Phalarope in Orkney.—On the 28th of November I shot a fine female specimen of the gray phalarope (*Phalaropus platyrhynchus*), in winter plumage, which I have mounted for my own collection. It is now nearly four years since I shot one here before, and only the third specimen I have seen got here, and, although constantly collecting, having seen so few, I consider them rare in Orkney.—*Joseph Dunn; Stromness, Orkney, December* 12, 1859.

Occurrence of the Little Auk in Orkney.—On the 2nd instant I was fortunate enough to shoot a few fine specimens of the little auk (*Uria alle*), in winter plumage:

as those I got were uncommonly fat, and were so active and incessantly diving, I concluded they had only newly arrived, as I am of opinion they cannot get their proper food, as, after being a short time here, I have remarked that they soon get very lean and eventually pine away. On the 5th instant I was fortunate enough to get four more, but have not seen any since.—*Id.*

Occurrence of the Glaucous Gull in Orkney.—I have seen four glaucous gulls (*Larus glaucus*), in the first year's plumage, this winter, two of which I fortunately obtained last week.—*Id.*

On some Structural Peculiarities in the Pipe Fishes.—The specimen of the Syngnathus before us is dried so as to preserve and show a very beautiful apparatus which exists under the lower jaw, and which I have not seen exhibited in any of the museum specimens that have come under my observation, nor have I seen it described. The apparatus to which I allude is what may be called a "Derrick mechanism" for enlarging the opening of the mouth, and widening the throat in the act of swallowing. As the Syngnathus is usually drawn or preserved in museums, the under line of the jaw is nearly horizontal, the under line of profile deviating little from the horizontal and showing no projection; and looked at in a vivarium the aspect of the fish is the same, and the only motion usually perceptible about the jaw is that of the singular-looking fleshy lip, which projects upwards from the extremity of the lower jaw, with its valve-like action opening slightly to admit water for respiration, and then closing to aid the action of the tubular jaw in driving the water backwards through the gills; but this limited motion would not suffice for taking in food, and hence, when the Syngnathus is about to swallow, the action of the mechanism I shall now describe is brought into play. If the dried specimen be viewed laterally a process about a quarter of an inch long is seen projecting downwards at right angles to the jaw. If instead of the lateral view this process be looked at in front, it is seen to consist of two limbs, or processes, like those of a derrick, one springing from the lower jaw on each side and uniting at an angle in the centre. From this point of junction, which appears to be ligamentary, an elastic tissue extends along the mesial line between the two sides of the lower jaw to the valve-like lip, while behind a muscular tissue exists, stretching backwards from the point between the operculum to what I believe is the os hyoides. When the animal is alive the action of this mechanism is very beautiful. In the mere process of breathing this apparatus does not come into view at all. It lies quite hidden within the triangular space within the lower jaw, and fits it, and fills the space so accurately that it is very difficult to detect it, and even in the dead specimen the action of this elastic tissue keeps it so accurately fitted in its berth that it may escape a very close examination. To return, however, to the living animal,—when the Syngnathus is about to swallow it draws out by muscular action the point of this derrick, as we may call it, from its receptacle. In so doing, the point of it draws with it the ligamentary tissue extending to the lower lip until the point is drawn down so as to be at right angles with the jaw; the lower lip is necessarily drawn downwards and backwards, so as to widen the orifice of the mouth, and the profile of the fish, with the process projecting downwards, is then such as is seen in the dried specimen. At the same time as the opening of the mouth is enlarged, the capacity of the throat is widened. The long fork or process consists of two limbs, as already described, uniting at an angle in the centre. The same muscular action which draws back the point of junction in drawing it downwards, and away from the lower jaw, widens the whole extent of the pipe-like mouth; but it does more than this, for by the same action the two lips of the bony fork, or derrick, are made to diverge, and in so doing the throat of the fish is also enlarged laterally and to double its former size. In an ordinary-sized Syngnathus, the lower jaw measures about a quarter of an inch across, when the bony fork is lying in its receptacle, but when the fork is in action and out at its full extent at right angles to the jaw, its limbs diverge until it separates the jaws to the extent of half an inch. The Syngnathus may be watched a long time in confinement before the action of this apparatus is seen. Sometimes one's patience is quite worn out watching for it; at other times the action is seen several times in a minute, and it is then beautiful to observe with the action and projection of the bony derrick the simultaneous drawing down of the lip and the widening of the long pipe-like mouth and throat. In this mechanism there is an antagonism of ligamentary and muscular action, the ligamentary elasticity drawing down and retaining the point of the bony fork in its receptacle within the angle of the jaw, the muscular action elevating it when required to aid the action of swallowing. In the dead animal the elastic action containing the bony fork is retained in its receptacle, and escapes observation. In the living animal, however, this bony process and its action may be easily demonstrated, by gently bending back the head of the fish, and raising the point of the process with the nail or a fine edge, and it will then be seen that while thus retained the mouth is opened wide and cannot be shut. Dr. Mayne has drawn my attention to an antagonism of muscular action and ligamentary elasticity in the larynx of the porpoise, similar to that which exists in the jaw mechanism in the Syngnathus. In the porpoise an elastic action keeps the larynx closed without any effort on the part of the animal until it rises to breathe at the surface, when a muscular action comes into play, and for the moment opens the larynx to permit the ingress of air. The Syngnathus is one of our most interesting fishes in a vivarium, so singular in appearance, so different from all other order of fishes, and so vivid in the contrast of its colours, and so cased in armour. It is at first very wild, and, unless the vivarium be covered, will almost certainly jump over its sides; but it soon becomes reconciled to confinement, and will, with a turn or two of its tail, support itself on any stem placed in the vivarium for its support; or, if there be two of them, they will intertwine their tails in a knot, and raise their heads and long slender bodies, side by side, towards the surface, remaining for hours in that posture. In this (the Syngnathus æquoreus) there is no pouch for the reception and protection of the young; but in the other specimen on the table (Syngnathus acus), which I beg also to present to the Society, the pouch—if it can be properly called a pouch—is well seen. It is about four inches long, resembling a bag split down one of its sides, and with the edges lying in apposition. I must beg of the Society to excuse any errors into which I may have fallen in my observations, for my acquaintance with Natural History is necessarily very limited, but it happens that I have occasionally favourable opportunities of observing the physiology and habits of some of our fishes in confinement, and such observations as I have in my power I feel obliged to this Society for receiving. — *Dr. Carrigan, addressing the Dublin Natural History Society.*

Remarks on Bombyx Quercus and the Variety B. Callunæ of Palmer.—For years past it has been the custom with northern collectors in want of this species to visit the Moors and Bogs (called "Mosses" down here) in spring, collect the larvæ on heather, and feed them on hawthorn till they assume the pupa state; what remain unchanged are thrown away. If a female is bred, she is taken to the Moors or Bogs, and the males are attracted in great numbers. Those pupæ which do not come out are kept till the following season; hence the idea gets abroad, "It is a heather-feeder, two years to come to maturity, and various months given for its appearance in the perfect state." During the last two years I have paid some attention to the subject, as regards the district of Bowdon, which is four miles from Carrington Moss. We have nothing but the Callunæ variety in this part. So far from the larva being confined to the heather, it is abundant in the lanes, feeding apparently on almost everything growing in the fences; to find them in these situations is an arduous task, compared to the heather. In the neighbourhood of the Moors, generally bleak and barren districts, where stone walls occur in lieu of fences, the heather is the only place to find them. The larva taken in spring vary in appearance and also in size: in their later stages they grow with amazing rapidity; they remain in the cocoon about a month, but others remain till the following season; some of the larvæ will continue feeding till August and September, and then go into cocoon. The moths continue on the wing from the end of June into August. I think it is very probable that the first moths which make their appearance are those which have passed the winter in the pupa state, and the constant flight of the moths is kept up into August from the present season's cocoons. In the 'Annales Ent. Soc. France, 1858,' is an elaborate communication on this subject by M. Guenée, with figures of the young larvæ of B. Quercus and B. Callunæ. The difference is then very striking, but as they get older the larvæ cannot be separated. Your readers who are interested in the subject must refer to the above, being too long for these pages. B. Callunæ is said to vary but little; it is, in fact, most variable, especially the males: some are very small, others very large; some deep chocolate, others reddish brown. I possess a male and female olive-brown; the basal tawny patch is developed in an extraordinary manner, through all gradations to none at all, the tawny bands assume all sorts of forms, sometimes very broad down to a narrow streak; others occur, but rarely, without any band at all. The female is not so liable to these extraordinary changes; it is chiefly in the tone of colour, some are very dark and others very light; the largest and darkest females are from the moors. I am indebted to Mr. E. Shepherd for four males of the southern B. Quercus with exceedingly broad tawny bands; it appears to be an uncommon variety there, and this form in B. Callunæ is rare down here. To Mr. Doubleday I am indebted for specimens of B. Quercus from Epping; these are small, and appear as if the breed was running out,—unless they migrate northwards the tribe would become extinct: he was kind enough to send me ten larvæ this season; all died in the cocoon, and believe the same fate attended his own. I was desirous of trying the experiment of taking our males with these southern females, and observing the result of their union; another season I hope to be more successful. In my opinion we have but a single species (*B. Quercus*, Lin.), whose head-quarters are the Moors and Mosses of the North. From the end of June into August the males fly with amazing vigour in search of the females. In the highly cultivated districts, like Bowdon, where fences, lanes, &c., occur, we have not the same opportunity of observing their numbers on the wing, unless we attract them with a female. Below I give you a few extracts from my journal, showing what peculiar habits occur through all the stages.

1858.

May 12. Carrington Moss; on the heather picked up six B. Callunæ larvæ, variable in size.

July 14. Carrington Moss; find female B. Callunæ been out some time.

July 23. Four of the above larvæ in cocoon for some days past.

July 24. Carrington Moss; B. Callunæ flying in abundance; on my return home male B. Callunæ bred (larva, May 12), and two of the larvæ still feeding.

Aug. 2. Another larva in cocoon; female bred; take her to Carrington Moss to attract males; select some twenty fine specimens.

Aug. 6. Bred another female B. Callunæ.

Aug. 7. Take her to Carrington; males visit her in great abundance; find an old female on the heather depositing her eggs.

Aug. 10. Eggs of B. Callunæ, laid 24th July, hatch to day.

Leaving home at this date for three weeks, the single larva (still feeding) was turned out into the garden, and two pupæ remain over till next season.

1859.

May 9. Carrington Moss; get six or eight larvæ of B. Callunæ, various sizes, Mr. Sidebotham a few also.

May 13. Receive from Mr Doubleday ten larvæ of B. Quercus nearly full grown; ours not more than half-grown.

May 27. Most of Mr. Doubleday's larvæ in cocoon.

June 10. Carrington larvæ grown amazingly, but do not appear inclined to form cocoons.

June 11. Leave home till the 28th.

June 21. See B. Callunæ on the wing over heather at the foot of Skiddaw, Cumberland.

June 27. My people write me female B Callunæ (last year's cocoon) bred, taken to Carrington Moss, where another female was found on the heather; attract the males in great abundance, and the larvæ taken May 9th are still feeding.

July 7. Mr. Sidebotham breeds two female B. Callunæ; my larvæ, taken same time, still feeding.

July 8. Bred another female; last season's cocoon; place her in the garden at Bowdon, and attracts the males in plenty; and again the next day Mr. Sidebotham's female, kept in the coach-house at Sale, is visited by a host of males; on the same day males observed on the wing in the parish of Hale.

July 12. B. Callunæ flying abundantly at Bowdon, and a female picked up on the fence.

July 16. Carrington Moss, B. Callunæ in plenty.

July 18. Carrington Moss, B. Callunæ and a female found at Sale.

July 19. One of the Carrington larvæ (May 9th) in cocoon; the others refuse to go into cocoon.

I leave home for three weeks.—*R. S. Edleston; Bowdon, December 7, 1859.*
From the 'Intelligencer,' vii. 93.

Description of the Larva of Eupithecia linariata.—Short and stumpy, slightly tapering towards the head. When young bright yellow, with blackish dorsal spots. When full-fed yellowish green, with a series of large dull olive or rust-coloured dorsal spots or bars, running the whole length, and bordered on either side by a dusky olive line. Head nearly black. Belly dusky. Spiracles black. Body sprinkled with short whitish hairs, and here and there studded with black tubercles. The dorsal markings are frequently very indistinct, and sometimes wanting altogether, and the larva is one uniform yellowish green. Feeds in August and September on the flowers and seeds of the common wild snap-dragon (*Linaria vulgaris*). It is uncertain in its appearance, being one year exceedingly abundant and the next very scarce. The pupa, which is enclosed in an earthen cocoon, has the abdomen reddish yellow, tip blood red, thorax and wing cases olive. The perfect insect appears in May. In very hot seasons it is sometimes double brooded.—*H. Harpur Crewe; Medstead, Alton, Hants, November* 28, 1859.

Description of the Larva of Eupithecia subfulvata.—Long, tapering but slightly towards the head. Reddish brown, with a series of dusky olive oval dorsal spots, confluent towards the head and tail, and connected and intersected by a central dorsal line, paler in colour than the spots. Spiracular line white. Subdorsal lines black, interrupted. Back thickly studded with minute white tubercles, and less thickly with whitish hairs. Belly whitish, with a central purplish line running the whole length. Feeds in September and October on the flowers and seeds of yarrow (*Achillæa millefolium*). Pupa enclosed in an earthen cocoon; uniform, orange red, thorax and wing cases paler than abdomen. Tip of latter blood-red. Long, rather slender and tapering. Abdominal divisions deep red. Wing-cases much furrowed. The perfect insect appears in June and July. I prefer retaining the name E. subfulvata, as the foregoing description was taken from larvæ reared from eggs of this so-called variety of E. succenturiata. I shall continue to believe that the two insects are distinct species till some person breeds one from the egg of the other. I never heard that this has been done. The exhibition of a long series of varieties running one into the other proves nothing at all. It has never been my good fortune to be in a locality where E. succenturiata occurred, so that I have never been able to try the experiment. I shall feel deeply indebted to any gentleman who is in the habit of taking this insect if he will send me a few eggs or a living female.—*Id.*

Drawings of the Genus Eupithecia.—I am at present drawing and colouring from Nature, in the 'Manual,' the Genus Eupithecia. The following species I do not possess, E. consignata, E. pernotata, E. egenaria, E. pusillata,* E. irriguata, E. indigata* and E. expallidata. Those marked with a star I have only poor specimens of. If any collector would be so obliging as to lend me a specimen of these species, for the purpose above named, I should feel very much indebted to him. The utmost care shall be taken, and postage of course paid both ways.—*J. Greene; Cubley Rectory, Doveridge, Derby.*

Larva of Caradrina cubicularis in Wheat-ricks.—After reading M. Guenée's description of the habits of the larva of Apamea basilinea (Noctuelites, vol. i. p. 205) I thought I should have no difficulty in obtaining the perfect insect, which, although pronounced by the 'Manual' to be "common everywhere," is not, according to my experience, so common here. I accordingly sought among corn-ricks and on barn floors for the larvæ. In the winter of last year, and early in the spring of this year, I was present at the removal of several corn-ricks from the field to the barn, and as the sheaves were pitched from the rick to the cart, thousands of larvæ were strewed upon the ground. Robins and other small birds, as though invited to the feast, were regaling upon them. These, however, proved to be not the larvæ of A. basilinea, but the larvæ of C. cubicularis, and up to the present time, though I have again this year sought for A. basilinea I have obtained only larvæ of C. cubicularis. Now Guenée describes the larvæ of A. basilinea as being destructive to the cereals; and in 'Noctuelites,' vol. i. p. 234, he says, "None of the larvæ of Caridrinidæ are injurious to agriculture." Surely the larvæ of C. cubicularis would not be found in such abundance among corn, unless they fed upon it. The fact of the larvæ of C. cubicularis being found in corn-ricks is noticed in 'Humphreys and Westwood's British Moths' vol i. p. 146.—*H. D'Orville; Alphington, Exeter, December* 8, 1859.

Sphinx Convolvuli Imago and Larva.—Between the 8th of August and the 24th of September, the days on which I captured the first and last, I captured in my garden twenty S. Convolvuli—the majority of them females, and many so much damaged as not to be worth setting. From one female only I obtained a single laid egg; and although I carefully extracted from the same female many more eggs, and also a large number from the others, the egg deposited was the only one that produced a larva, which hatched on the twelfth day; it was pale green, with a very black caudal horn; it fed for ten days upon Convolvulus arvensis, and died in the first moult. On the 14th of October I obtained a nearly full-grown larva of S. Convolvuli, dug up in a potato-field, and so covered with wet dirt that I infer it conceals itself under ground by day, and feeds by night. The ground was so covered with weeds that I could not trace any appearance of frass. It lived only ten days, obstinately refusing all food. The appearance of the larva was precisely as Mr. Newman describes it (Zool. 6788).—*Id.*

Foreigners, and doubtful British Species.

By Mr. Charles Miller. *

"Vanessa Antiopa, Pieris Daplidice, and Argynnis Lathonia are not resident in this country; they are casual visitors. Lathonia may probably have stronger claims than the others; but, if resident, there should be localities where it could be collected annually, like Actæon and Arion."—'*Intelligencer*,' No. 160, p. 26.

Having seen what Mr. Harding has accomplished, I think it behoves all of us, as far as we possibly can, to follow in his footsteps, and put our shoulders to the wheel of Entomology, aiding the cause not only with our out-door exploits, but, during this season of Nature's rest, pushing the subject with a few papers of a similar nature.

Really, after his parting and emphatic injunction, "Go thou and do likewise," I think an entomologist of any pretension cannot hold aloof; and therefore, wishing to be second on the list, I have jotted down a few remarks upon an important subject, which, though rather interesting, are, I fear, somewhat vaguely expressed. I shall entitle them "Foreigners, and doubtful British Species." It is a subject which has for some years been a source of controversy, and has recently, as you all probably know, been touched upon by Mr. Stainton, in one of his leading articles in the 'Intelligencer,' and has brought forth remarks from one or two of our best entomologists, and created some sensation amongst the many who do not put their thoughts and opinions upon paper.

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* Read at a Meeting of the Haggerstone Entomological Society, December 8, 1859.

I do not, in the limits of the present article, intend to put forward any new facts, but rather to take a review of the opinions already expressed, and make a few remarks upon the same. Before, however, proceeding to the immediate subject of my paper, it will perhaps be as well to ascertain the meaning of the terms with which I have prefaced it, more especially as they have in effect considerable bearing upon the matter.

As at present applied, the term "foreigners" includes indiscriminately those species which are of such rare occurrence as to leave a doubt whether they are in reality inhabitants of this country, those species which were formerly taken here, and even those which are yearly captured in some numbers. This application is both vague and incorrect; a foreigner, as I take it, being a species which does not undergo its transformations in England; and this, I think, is the true and only explanation which can be given of the term. "Doubtful British species" appears to me to be a phrase much more applicable, and capable of greater extension in its meaning, and for the following reasons. *First*, I do not consider the rarity of an insect any proof of its non-British origin; *secondly*, many species, doubtful so-called, are very likely to occur here in the larva state, from the presence of their natural food, or from the fact of their existing on allied species of plants; and *thirdly*, the non-occurrence of an insect for a series of years is no argument against its still being British. These, however, in an inverse sense, are the arguments put forward in favour of the exclusion of many species from our lists. I cannot subscribe to any of them. I will not say there are not cases where Lepidoptera of foreign origin are introduced, for instance Sphinx Carolina, an American species; but I do object to all our rarities being included in the same category.

From the foregoing remarks it will easily be seen that I am in favour of the retention of doubtful British species, and of species coming within the meaning of the term as I have explained it; and

I shall, from different examples and otherwise, endeavour to prove the correctness of my views.

In the present day Entomology is much more generally studied; the number of observers is so largely increased that rare species are continually being found, whose only claim to be considered British rests on a specimen or two "turning up," and that, too, in spots yearly visited by collectors; and before the second season is over they are distributed in all the chief cabinets throughout the kingdom. Look at Erastria Venustula, a species quite entitled, according to the theory of the abolitionists, to be considered doubtful. How many times have I myself visited Loughton, and how many other collectors have rambled over the very spot, and yet not taken it. Mr. Stephens recorded, in 1830, that only four specimens were known to be in existence; and for fifteen years the species was unnoticed, when Mr. Doubleday called attention to it; but he only succeeded in capturing two specimens. Fourteen years more elapse, and the species again appears upon the scene, I am happy to say through the instrumentality of members of the Haggerstone Entomological Society. I should be loth to believe that the insect was common only last year, and in the years in which it has appeared: I rather incline to think it is a defect in our knowledge of the habits of the species.

Take another example—Trochilium Chrysidiforme. This was long a doubtful species, Messrs. Doubleday and Stephens having erased it from their Catalogues of British Lepidoptera, the former from his 'Synonymic List,' the latter from the Museum 'Catalogue.' Time, however, which makes all plain that was before indistinct, has restored it to us, and in a very singular manner. As some of you may not have heard the particulars, I will relate them briefly. Some one has remarked that all great discoveries are the result of accident: this is certainly an example. Mr. Brewer, of Reigate, on the occasion of an excursion from that town to Dover, availed himself of the opportunity and joined the excursionists, for the purpose of collecting his favourite order Coleoptera. Whilst engaged in the search, at some point between Folkestone and Dover, he saw a pretty clear-wing, which he fortunately succeeded in incarcerating in his tobacco-box, little dreaming of the importance of his capture. By him it was presented in a casual way to Mr. Douglas, who recognised in the specimen the rejected Trochilium Chrysidiforme. Since then the species has been repeatedly taken, and, I do not doubt, will continue to be so for years to come.

One other example. Dr. Knaggs, only this year (Zool. 6733), records the capture, by himself, of eleven larvæ of Clostera anachoreta, another rejected species, or so rare as to be entitled to be put amongst the "doubtfuls" by the abolitionists. All this goes to prove that the exclusion of species is often premature.

Mr. Stainton, in opening the discussion, in the article before referred to, made choice (very unhappily as it appears) of three species to illustrate his argument — Vanessa Antiopa, Pieris Daplidice and Argynnis Lathonia. I shall say a few words upon these species, and take the expressed view of most entomologists of the present day who consider their claims as British insects undoubted. With many of the doubtful species, the fact of their being constantly taken upon the coast is put forward as an argument in favour of their foreign origin. In the case of P. Daplidice this will not hold good. Only last year a mutual friend of Mr. Biggs and myself captured one or two specimens at Cambridge; yet Cambridge is quite inland, fifty miles, as the crow flies, being the nearest point of sea-coast.

Other instances of this species being taken far inland might be cited; but the above is sufficient for the purpose. Then, again, it has been taken here from time immemorial, and in such condition as to put the idea of its being "blown over" out of the question.

The larva of this species feeds upon the wild mignonette, a thoroughly English plant; and I have heard, I think from Mr. Harding, that it has been found at Dover. If this be correct, and I see no reason to doubt it, the claims of P. Daplidice are fully made out; for a British insect is one that undergoes its transformations in this country.

V. Antiopa has even stronger claims. North, south, east, west, in all parts of England is this splendid insect occasionally taken. I have never heard of the larva being taken here; but then I believe it feeds on the tops of willows; and, persevering as entomologists are, they can hardly be expected to climb to the top of every willow tree in their neighbourhood, on the doubtful chance of finding the object of their search, and at the risk of their necks.

A. Lathonia has so often, and for so many years, been taken here, that, to my mind, it has quite as good claims as the others.

With these examples—and many of a similar kind might be brought forward—I think it is too much for any individual to take upon himself to reject our "doubtful" species. As mortals we are, providentially, short-sighted, and cannot probe the future; therefore it is impossible to say how many of these doubtful species may not be settled in the next few years. When we get fully acquainted with the habits of species, I do not hesitate to say that we shall have no doubtful ones in our lists; for as larva-collecting gets more general it can easily be proved whether an insect passes the whole of its transformations in this country.

Many species are of such retired habits that we rarely meet with them in the perfect state, although as larvæ they may be abundant. Amongst the Tineina some species are only found in the larva state; and therefore, however rare a species may be in the perfect state, I consider we ought not to expunge it until we are satisfied that it does not breed here,—in fact, that it is a "foreigner."

If we agree with Mr. Stainton that P. Daplidice, V. Antiopa and A. Lathonia are not truly British, we must pursue the same course with many of our rarest Lepidoptera, the transformations of which we are unacquainted with: the theory will apply equally well to either case. Does any one here doubt that the common skipper (*Pamphila Sylvanus*) is a British species? Has it never struck any of you, when watching this pretty creature sporting from flower to flower, that it may have been "blown over?" Yet, ridiculous as it may seem, to carry the argument out such must be the case; for it must be borne in mind that, long as we have been accustomed to look upon P. Sylvanus as British, the discovery of the larva is yet unrecorded; and if we exclude P. Daplidice, V. Antiopa and A. Lathonia as non-residents, or in other words because they do not pass their transformations here, we should do so with P. Sylvanus, because we have no proof either way in either case.

An argument put forward by the abolitionists, in some cases, is the absence of the natural food of some species, of which the transformations are known. Now, I acknowledge that many species are exclusive in their food; but, again, there are plenty which, though not polyphagous, devour different plants, or at least feed on allied species. There is one of our rarest Micros—Hypercallia Christiernana—which feeds, on the Continent, on Polygala Chamæbuxus. This is not a British plant; but Mr. Stainton, having received some larvæ from Germany, and being short of their food-plant, tried them with an allied species, Polygala vulgaris, which they ate readily. This fact, I have no doubt, will apply to many other species of the various families of Lepidoptera.

With regard to those species which were formerly taken here, but which are now never met with, I will quote an example, Plusia illustris. This beautiful Noctua was thrown out by Mr. Doubleday, but, singular to relate, reintroduced by Mr. Stainton. Whence can arise this perversity? P. Daplidice, V. Antiopa and A. Lathonia, species repeatedly captured, and very recently, he designates "foreigners;" whilst P. illustria, a doubtful species, not taken for years, he restores to the British list. Old authors give as a locality for this insect Salisbury Plain. Does any one search for it? I presume not; and it may occur there now for what we know to the contrary.

I shall say a few words, more immediately on the "blown-over" theory. The diurnal Lepidoptera, the Sphinges, the Bombycidæ and Noctuidæ are the only families we need take into consideration; the slightness of their structure and weakness of their flight being, to my idea, quite sufficient argument against any other species of the remaining families finding their way across the Channel.

The Sphingidæ and Bombycidæ, for the most part, are very strong of flight; and examples of the former family have been taken far out at sea, I believe hundreds of miles from land. This may be urged in favour of the foreign origin of those species occasionally taken here; but then it is very singular that only certain species should have such an erratic tendency. The Continent of Europe possessing many more species of the above families than are found here, it is also remarkable that we are not occasionally visited by other species than those which are the subject of doubt. If only from these ideas, I should feel much inclined to give all "doubtfuls" a place, until we are so well acquainted with their habits as to satisfy ourselves that they do not breed here.

There is only one other point upon which I shall touch; it is that of insects surreptitiously introduced into this country, which had their birth, lived their little day, and died under the pin of a foreign hand, in a foreign country. There can only be one expression suitable for a line of conduct descending to such trickery; it is fraudulent; yet I firmly believe it is practised by some of our more unscrupulous dealers. The insects we have at present in our lists are scarcely open to this objection, being species for the most part taken long before Entomology was made a regular trade as well as a science; and all impositions might be effectually guarded against, if the peregrinations of the insect were traced to their original source, the captor.

CHARLES MILLER.

A List of the described Longicornia of Australia.

By FRANCIS P. PASCOE, Esq., F.L.S., &c.

THE following list of the longicorn Coleoptera of Australasia has been drawn up in order to show, at one view, the extent of that portion of its insect-fauna, so far as it is known at present; and also with the hope of calling the attention of naturalists to the desirableness of such lists generally. The frequent re-issue of the Botanical Society's 'List of British Plants' and the four Catalogues of European Coleoptera, one of which has gone through eight editions, sufficiently attest their utility; and it cannot be doubted, especially in the present diffused and disjointed state of zoological and botanical literature, that an extension of this class of small books would be a great boon to the student of natural science, and particularly to the investigator of the geographical distribution of species.

There are about four hundred and twenty longicorns natives of Europe; the present list contains the names of two hundred and fifty-nine: looking to the nearly equal areas of the two regions, the more favourable climatic influences of Australia, and that our collections have been derived principally from the Adelaide, Melbourne and Sydney districts, it may be fairly assumed that we are not yet acquainted with one half; as it is, the list might have been considerably extended by the introduction of the unpublished species in our cabinets.

The localities given in this list are only such as could be fully relied on, but it is interesting to mark the wide diffusion of many of the species, notwithstanding we find that only two of them extend to New Zealand (Phoracantha dorsalis and Brachytria latebrosa), and one only (Phoracantha biguttata), if we except a doubtful Xystrocera, to New Guinea. Moreover, there are only two genera common to, and confined to, Australasia and New Zealand (Microtragus and Phlyctænodes), and two, in like manner, to Australasia and New Guinea (Meton and Symphyletes). Of course these remarks will, probably, have to be considerably modified when our knowledge becomes more extended.

PRIONIDÆ.

Notophysis lucanoides, *Serv.* Kangaroo Island.
Dorx pentamera, *Newm.*
Toxeutes arcuatus, *Newm.* Tasmania.
Sceleocantha glabricollis, *Newm.* Tasmania.
S. pilosicollis, *Hope.* Swan River.
Mallodon spinosum, *Newm.*

M. impar, *Newm.* Kangaroo Island.
M. figuratum, *Pasc.*
M. stigmosum, *Newm.*
Cnemoplites edulis, *Newm.*
C. spinicollis, *McLeay.*
C. insularis, *Hope.* Port Essington.
Macrotoma gemella, *Pasc.* Sydney.
Rhipidocerus Australasiæ, *Waterhouse.*
Tragocerus bidentatus, *Don.*
T. fasciatus, *Don.*
T. subfasciatus, *Germ.* Adelaide.
T. Spencei, *Hope.* Sydney, Adelaide.
T. lepidopterus, *Schreber.* Sydney.
Neostenus Saundersii, *Pasc.* Melbourne.
Distichocera par, *Newm.* Adelaide, Melbourne.
D. maculicollis, *Kirby.*
D. Kirbyi, *Newm.* Sydney.
D. Macleayi, *Newm.* Sydney.
D. Thomsonella, *White.*
Pœcilosoma metallicum, *Newm.* Tasmania.

CERAMBYCIDÆ.

Didymocantha obliqua, *Newm.*
D. scutellata, *Hope.* Melbourne, Sydney, Moreton Bay.
D. thoracica, *Pasc.* Moreton Bay.
D. cylindricollis, *Pasc.* Moreton Bay.
D. cretifera, *Hope.*
Piezarthrius marginellus, *Hope.* Swan River.
Trichomesia Newmanni, *Pasc.* Melbourne, Sydney.
Uracanthus triangularis, *Hope.*
U. bivitta, *Newm.* Sydney, Moreton Bay.
U. pallens, *Hope.* Tasmania.
U. fusco-cinereus, *White.* Sydney.
Scolecobrotus Westwoodii, *Hope.* Tasmania.
Stenochorus annulicornis, *Germ.* Adelaide.
Petalodes laminosus, *Newm.* Adelaide.
P. plagiatus, *White.*
Phoracantha hamata, *Newm.*
P. gigas, *Hope.*
P. lata, *Hope.*
P. robusta, *Germ.* Adelaide.
P. longipennis, *Hope.* Tasmania.
P. tricuspis, *Newm.* Sydney.
P. punctata, *Kirby.* Sydney.
P. obscura, *Don.* Sydney, Moreton Bay.
P. Mitchellii, *Hope.* Swan River.
P. semipunctata, *F.* Melbourne, Swan River.
P. quinaria, *Newm.* Adelaide, Melbourne.
P. recurva, *Newm.* Adelaide, Melbourne.
P. inscripta, *Germ.* Adelaide.
P. acanthocerus, *Hope.*
P. trimaculata, *Hope.* Swan River.
P. allapsa, *Newm.* Adelaide, Tasmania.
P. vicina, *Hope.* Port Essington.
P. undulata, *Hope.* Swan River.
P. assimilis, *Hope.* Tasmania.
P. aberrans, *Newm.*
P. senio, *Newm.* Adelaide, Melbourne.
P. unifasciata, *Hope.*
P. tunicata, *Hope.*
P. dorsalis, *McLeay.* Melbourne.
P. impavida, *Newm.*
P. gracilis, *Perroud.* Tasmania.
P. imbellis, *Newm.* Port Philip.
P. rubripes, *Bois.*
P. biguttata, *Don.* Sydney, Moreton Bay.
P. decora, *Perroud.*
Phlyctænodes pustulosa, *Newm.* Tasmania.
P. pustulata, *Hope.* Richmond River.
N. G. (Rhagiomorpha) unicolor, *Hope.* Port Essington.
Stenoderus suturalis, *Ol.* Adelaide, Melbourne, Sydney.
S. concolor, *McLeay.* Melbourne.
S. ostricilla, *Newm.*
S. maculicornis, *W. W. Saund.*
Tritocosmia Roei, *Hope.* Swan River.
T. atricilla, *Newm.*
T. Digglesii, *Pasc.* Moreton Bay.
T. rubea, *Pasc.* Moreton Bay.
T. paradoxa, *Pasc.* Melbourne.

Syllitus rectus, *Newm.* Adelaide, Melbourne.
S. grammicus, *Newm.* Adelaide, Melbourne.
S. præustus, *Newm.*
Rhagiomorpha lepturoides, *Bois.* Adelaide, Sydney.
R. ? sordida, *Newm.* Adelaide.
R. exilis, *Pasc.* Moreton Bay.
Tricheops ephippiger, *Newm.* Sydney.
Xystrocera virescens, *Newm.* Melbourne.
X. Australasiæ, *Hope.* Port Essington.
Cerambyx sericus, *Newm.* Sydney, Melbourne, Moreton Bay.
C. Australasiæ, *Hope.* Port Essington.
C. picipennis, *Germ.* Adelaide.
C. turbinaticornis, *Germ.* Adelaide, Melbourne.
C. ? lativitta, *Newm.*
C. ? subserratus, *Newm.*
Bardistus cibarius, *Newm.*
Diotima undulata, *Pasc.* Moreton Bay.
Cyclodera quadrinotata, *White.* Perry Island.
C. Angasii, *White.* Adelaide, Melbourne.
Callichroma Cinderella, *White.* "N.E. Coast."
Necydalis ? sidus, *Newm.*
N. auricomus, *Newm.*
Hesthesis variegatus, *Newm.* Sydney.
H. bizonatus, *Newm.*
H. cingulatus, *Newm.* Melbourne.
H. mœrens, *Pasc.* Sydney.
H. ferrugineus, *McLeay.* Moreton Bay.
H. ornatus, *W. W. Saund.* Hunter's River, Sydney.
Agapete carissima, *Newm.* Melbourne.
Tropis dimidiata, *Newm.* Sydney, Moreton Bay.
T. oculifera, *Newm.* Tasmania.
Bimia bicolor, *White.* Sydney, Moreton Bay.
B. femoralis, *W. W. Saund.*
Eroschema Poweri, *Pasc.* Melbourne, Moreton Bay.
Ischnotes cylindraceus, *Newm.* Adelaide.
I. Bakewellii, *Pasc.* Melbourne.
Amphirhoë decora, *Newm.* Tasmania.
Mecynopus cothurnatus, *Er.* Tasmania.
M. semivitreus, *Pasc.* Melbourne.
Psilomorpha tenuipes, *W. W. Saund.*
P. apicalis, *Pasc.* Moreton Bay.
Macrones exilis, *Newm.* Tasmania.
M. rufus, *W. W. Saund.* Hunter's River.
M. elongaticeps, *Homb. et Jacq.* Tasmania.
Enchoptera apicalis, *W. W. Saund.* Tasmania.
E. nigricornis, *W. W. Saund.* New South Wales.
Stephanops nasutus, *Shuck.* Adelaide, Moreton Bay.
Brachopsis concolor, *W. W. Saund.* Tasmania.
Hemesthocera flavilinea, *Newm.*
Ceresium ? intortum, *Newm.*
C. ? vile, *Newm.*
Obrium ibidionoides, *Pasc.* Sydney, Melbourne.
Clytus thoracicus, *Don.* Sydney, Moreton Bay.
C. Curtisii, *Lap. et Gory.*
C. D'Urvillei, *Lap. et Gory.* Moreton Bay.
C. glaucinus, *Bois.*
C. chrysoderes, *White.* Moreton Bay.
Tillomorpha mœstula, *White.* Moreton Bay.
Obrida fascialis, *White.* Melbourne.
Pseudocephalus formicides, *Newm.* Melbourne.
P. arietinus, *Newm.* Tasmania.
Callidium simillimum, *White.* Swan River.
C. Cucujus, *White.* Sydney.
C. cleroides, *White.* Melbourne.
C. catoxanthum, *White.* Adelaide.
C. erosum, *McLeay.*
C. ? artifex, *Newm.*
C. ? faber, *Newm.* Melbourne.
C. ? terebrans, *Newm.*
C. ? australe, *Bois.*
C. ? mororum, *Bois.*
C. ? funestum, *Bois.*

Callidiopis scutellaris, *F.* Melbourne.
C. præcox, *Er.* Tasmania, Melbourne, Sydney.
C. signifera, *Newm.* Tasmania, Melbourne.
Phacodes obscurus, *F.* Tasmania, Melbourne, Swan River.
P. personatus, *Er.* Tasmania, Melbourne.
P. Essingtoni, *Hope.* Port Essington.
P. Mossmanni, *Newm.* South Australia, Moreton Bay.
N. G. (Rhagiomorpha) plagiata, *Hope.* Port Essington.
Sophron inornatum, *Newm.* Melbourne.
Omotes cucujides, *Newm.* Melbourne.
O. punctissima, *Newm.* South Australia.
O. erosicollis, *Pasc.* Melbourne.
Pempsamacra dispersa, *Newm.* Adelaide, Melbourne.
P. tillides, *Newm.*
P. pygmæa, *Newm.* Adelaide, Melbourne.
P. vestita, *Pasc.* Melbourne.
Tessaromma undatum, *Newm.* Adelaide, Melbourne, Sydney, Moreton Bay.
Brachytria gulosa, *Newm.* Tasmania, Melbourne, Moreton Bay.
B. latebrosa, *Newm.* Melbourne, Kangaroo Island, Swan River.
B. pulcherrima, *Pasc.* Moreton Bay.
Pytheus jugosus, *Newm.* Sydney.
Telocera Wollastoni, *White.* Sydney.
Eburophora octoguttata, *White.* Melbourne.
Temnosternus planiusculus, *White.* Moreton Bay.
T. dissimilis, *Pasc.* Moreton Bay.
Enicodes Fichtelii, *Schreb.* Australia? (New Caledonia?).

LAMIIDÆ.

Hebecerus australis, *Bois.* Adelaide, Melbourne.
H. marginicollis, *Bois.* Melbourne.
H. crocogaster, *Dup.* Melbourne.
H. sparsus, *Reiche.* Swan River.
H. plumula, *Newm.* Tasmania, Melbourne.
H. lineola, *Newm.*
H. fuscicornis, *Germ.* Adelaide.
H. varicornis, *Germ.* Adelaide.
Pentacosmia scoparia, *Newm.* Melbourne, Moreton Bay.
Prosophus hollandicus, *Bois.*
Dysthæta anomala, *Pasc.* Moreton Bay.
Platymopsis obliqua, *Don.* Moreton Bay.
P. tuberculata, *Hope.* Port Essington.
P. armatula, *White.* N. Australia.
Symphyletes pedicornis, *F.* Sydney.
S. Solandri, *F.* Sydney.
S. puberea, *Bois.* Melbourne.
S. nodosa, *Newm.* Sydney, Moreton Bay.
S. humeralis, *White.*
S. subtuberculata, *White.*
S. maculicornis, *Pasc.* Swan River.
S. sodalis, *Pasc.* Moreton Bay.
S. cinnamomea, *Pasc.* Moreton Bay.
S. albocincta, *Don.* Sydney, Moreton Bay.
S. lateralis, *Pasc.* Swan River.
S. nigrovirens, *Don.* Sydney, Moreton Bay.
S. collaris, *Don.* "Botany Bay."
Rhytiphora porphyrea, *Don.* Sydney, Moreton Bay.
R. polymita, *Pasc.* Moreton Bay.
R. piperita, *Hope.* Port Essington.
R. caprina, *Newm.*
R. mixta, *Newm.*
R. cretata, *Pasc.* Moreton Bay.
Nyphona Bakewellii, *Pasc.* Moreton Bay.
Penthea vermiculata, *Don.* Sydney, Moreton Bay.
P. Saundersii, *Pasc.* Swan River.
P. pardalis, *Newm.* Moreton Bay.
P. granulosa, *Guér.* Sydney.
P. Sannio, *Newm.*
Callipyrga turrita, *Newm.* Moreton Bay.
Batocera rubus, *F.*
Monohammus lototephrus, *Bois.* Moreton Bay.
M. desperatus, *Thoms.*
M. argentatus, *Hope.*

M. sericeus, *D'Urv.* Melbourne.
M. mixtus, *Hope.*
M. togatus, *Perroud.*
M. fistulator, *Germ.* Sydney.
Meton Digglesii, *Pasc.* Moreton Bay.
Zygocera pruinosa, *McLeay.* Sydney, Moreton Bay.
Z. Macleayi, *Pasc.* Sydney.
Z. pentheoides, *Pasc.* Swan River.
Z. canosa, *Er.* Tasmania.
Z. bifasciata, *Pasc.*
Z. plumifera, *Pasc.* Moreton Bay.
Z. pumila, *Pasc.* Moreton Bay.
Z.? barbicornis, *Pasc.*
Olenocamptus bilobus, *F.*
Athemistus rugosulus, *Guér.* Sydney.
Microtragus amycteroides, *Pasc.* Moreton Bay.
Praonetha porosa, *Fald.* (Symphyletes?)
Notolophia bigibbera, *Newm.*
N. dispersa, *Pasc.* N. Australia.
Apomecyna nigrita, *Pasc.* N. Australia.
Ropira exorentroides, *Pasc.* Moreton Bay.
Hathlia grammica, *Pasc.* N. Australia?
H. lateralis, *Hope.* Port Essington.
H. murina, *Pasc.* N. Australia.
H. lineella, *Hope.* Port Essington.
H. lacteola, *Hope.* Port Essington.
H. quadrilineata, *Hope.* Port Essington.
H. melanocephala, *Hope.* Pt. Essington.
Anæsthetis lepida, *Germ.* Adelaide.
Illæna exilis, *Er.* Tasmania.
Saperda paulla, *Germ.* Adelaide, Melbourne, Sydney, Moreton Bay.
S. funesta, *Pasc.* Melbourne.
Cylindrodema dira, *Newm.* Moreton Bay.
Skeletodes tetrops, *Newm.*

FRANCIS P. PASCOE.

December, 1859.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

November 7, 1859.—Dr. GRAY, President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be presented to the donors:—'Proceedings of the Literary and Philosophical Society of Liverpool,' No. 13; presented by the Society. 'Bulletin de la Société Impériale des Naturalistes de Moscou,' 1858, Nos. 2, 3 and 4; 1859, No. 1; by the Society. 'Farm Insects,' Part 6; by the Author, John Curtis, Esq., F.L.S. 'The Zoologist' for November; by the Editor. 'List of the Specimens of Lepidopterous Insects in the Collection of the British Museum,' Part 18—Pyralides; by the Author, Francis Walker, Esq., F.L.S. 'The Journal of the Society of Arts' for October; by the Society. 'The Athenæum' for September; by the Editor. 'The Literary Gazette' for October; by the Editor. 'Catalogus Hemipterorum, Herausgegeben von dem Entomologischen Verein zu Stettin;' 'Stettiner Entomologische Zeitung,' Nos. 7—9; by the Entomological Society of Stettin. 'The Entomologist's Weekly Intelligencer,' Vol. vi. and Nos. 158—162; by H. T. Stainton, Esq.

Election of a Subscriber.

E. C. Rye, Esq., of King's Road, Chelsea, was balloted for, and elected a Subscriber to the Society.

Exhibitions.

Mr. Waterhouse exhibited, on the part of Dr. Power, two new British species of Coleoptera, viz., Donacia obscura of Gyllenhal, Lacordaire, &c., determined by Mr. Waterhouse; and Philonthus fuscus, *Gravenh.*, determined by Dr. Power. The Donacia was sent to Dr. Power by Mr. Somerville, of Glasgow; it is most nearly allied to D. Lemnæ, but is of an uniform bronze, inclining to lead-colour, has the posterior thighs more strongly dentate; the tarsi longer; the third joint relatively rather longer, the punctures of the striæ of elytra finer; the form of the hinder tibiæ also differs, &c. Of the Philonthus there are two specimens, one taken at Shirley and the other at Merton, in July of the present year.

Mr. Waterhouse then exhibited from his own collection :—

1. A specimen of Philonthus fuscus, *Grav.*, taken by him at Southend, at the beginning of September, 1858; it differs somewhat from Dr. Power's specimens (which have the thorax black, inclining to pitchy behind), in having the thorax red, with the fore-half pitchy; this, it would appear from the descriptions, is the more common colour of the part in question. In all the specimens exhibited the elytra are red, with the apex pitchy. Mr. Waterhouse added that Mr. Douglas has also taken this insect.

2. Tachinus laticollis, *Grav.*, *Kraatz*. Mr. Waterhouse stated that he is indebted to Mr. Constantine for a pair of this insect, which, according to Mr. Constantine, is not uncommon near Blackburn, in Lancashire. He had long searched for this insect in vain, both in the neighbourhood of London and in the New Forest, suspecting, from its range on the Continent, that it would be found here. By Erichson it is regarded as a variety of Tachinus marginellus, but it appears to Mr. Waterhouse that Dr. Kraatz is justified in again separating it as a species. Mr. Constantine, who takes both insects, states that he readily distinguishes them.

3. Tomoxia bucephala, *Costa*, *Mulsant.* = Mordella fasciata, *Payk.*, *Gyll.* Mr. Waterhouse has seen this insect mixed with specimens of the Mordella fasciata, *Fab.*, in several of the London collections. The Tomoxia is distinguished by differences in the structure of the antennæ and by differences in the relative length of the intermediate tibiæ and tarsi; but the most obvious distinction is in the large size and nearly square form of the scutellum, which is emarginate behind. In Mordella the scutellum is small and triangular.

4. Byturus fumatus, *Linn.* Like the preceding, seems to be confounded with a nearly allied species. It differs from M. tomentosus in having the elytra more elongate and the eye much larger; the antennæ also are inserted close to the anterior angle of the eye, whilst in M. tomentosus they are somewhat remote from that organ.

Tenebrio Molitor, specimens having deformities produced by injuries received by the larvæ. One specimen has the thorax shorter and broader than usual, and corresponds most closely with the insect upon which Mr. Stephens founds his Tenebrio laticollis; this type-specimen is evidently deformed. One specimen, exhibited by Mr. Waterhouse, had not the full number of joints to the antennæ, and the joints forming the club were much deformed, and more or less anchylosed. A second specimen was remarkable only for having one of the hind legs much smaller than the other.

Mr. Stevens exhibited a box of Coleoptera, chiefly Geodephaga, taken in the neighbourhood of Rio, by Mr. Squire.

Mr. Syme exhibited a beautiful drawing of the larva of Sphinx Convolvuli, drawn from Nature by Mrs. Syme; he also exhibited the following Lepidoptera, taken during the past season on the South Coast, viz., Leucania vitellina, Heliothis armigera, Ennomos fuscantaria and Phibalapteryx gemmaria.

Mr. Bond exhibited a fine Phycis, new to this country, taken in Dorsetshire by the Rev. Mr. Green; and a specimen of Ancylocheira fasciata, *Fab.*, found alive in Oxford Street, in July last.

Mr. Janson exhibited a specimen of Hydrochus carinatus, *Germar*, a species new to the British list, one of two taken by Mr. T. P. Dossetor, at the beginning of May last, in Holme Fen, Huntingdonshire; and an example of Mycetophagus quadriguttatus, *Müller* (M. pubescens, *Steph.*), found about three weeks since, by Mr. R. M'Lachlan, in a fungus on an oak, near Beckenham, Kent, and remarked that the present individual, one in the cabinet of the late Mr. Stephens, from the neighbourhood of Portsmouth, and one taken by Mr. Waterhouse, in the corridor of the Crystal Palace, at Sydenham, in April, were the only indigenous examples of this species he had yet seen.

Mr. Stainton exhibited some specimens of Micro-Lepidoptera, collected in South Africa by Mr. Trimen, amongst which was a beautiful Neurophora, which, unlike the known species of that genus, was adorned with elegant markings; some specimens of the genus Coleophora, though in bad condition, were interesting as the first extra-European examples of that genus which had been met with.

Mr. Stainton also exhibited, on behalf of Mr. Birks, of York, a specimen of Anchocelis rufina, with an expanded tuft of hairs inserted beneath the abdomen, on the side of the third segment; a similar brush had existed on the opposite side, but had become detached whilst being microscopically examined. Mr. Stainton said it had been suggested that this was a peculiarity of the male A. rufina, and Mr. McLachlan remarked that he had noticed it in other specimens.

Mr. Trimen exhibited some apparently nondescript Coleoptera and Lepidoptera, from South Africa.

Dr. Allchin exhibited an example of Luperina Dumerilii, taken at Brighton on the 26th September last.

Mr. Pascoe exhibited some longicorn beetles sent from Batchian by Mr. A. R. Wallace, and furnished the following characters of two of the species:—

CERAMBYX AUREIPENNIS.

C. ater; prothorace elongato, mutico, antice angustato, disco tuberculis tribus nitidis; elytris sericeo-aurantiacis; antennis corpore brevioribus. Long. 8 lin. Batchian.

TMESISTERNUS LOTOR.

T. oblongo-ovatus, fulvo-brunneus; capite, prothorace, elytris plagis tribus anticis, fascia post-mediana, maculisque apicalibus flavo-griseis; geniculis nigris. Long. 9 lin. Batchian.

Mr. G. Wailes communicated the following:—

Rhododendrons and their Enemies.

"Mr. Noble's communication, as to the destruction done to his Rhododendrons, reminds me of the doings of the larva of Mamestra Brassicæ amongst mine. Many years ago when the variety was scarce in gardens, these larvæ nearly ate up the whole of the young foliage of a plant of Rhododendron caucasicum album in a very few days, and on detecting the mischief I picked off some dozens of them. Since that time I have occasionally seen marks of their handiwork on the lower leaves of R. ponticum, especially where the branches swept the surface of the turf. This year they have flown at nobler game, and made sad havoc in a house which I have devoted to the growing of the Sikhim and Bhootan species. My collection of these fine plants wants only some three or four to include in it all the introduced species, and consists of more than a hundred plants. I mention this to show that the larvæ had full choice of food before them, whilst their attacks have been confined to the following,—glaucum, barbatum, Maddeni, Hookeri, Windsori and Jenkinsi, and of these the plants were scattered about in different parts of the house, intermingled with the other sorts. I need hardly add that the mischief was done at night, and evidently by larvæ of nearly full growth, as may be seen by the leaves I enclose, and, as I found to be the case, when I managed to capture the offenders. My impression is that a female moth had gained access by the open windows, and had deposited her eggs on some other plants in the house, and I noticed that some young Chinese primroses, &c., had their leaves partially eaten, which I concluded was the work of small slugs, and that it was not till other food failed, or the larvæ had acquired a taste for roaming, that they had recourse to the Rhododendrons. I have also observed that the larva of some Tortrix attacks and twists up the small leaves which terminate the growth of such species as R. Dalhousiæ, Edgworthii and formosum, but have not yet succeeded in rearing the species. The damage is very trifling, as they don't appear to meddle with the dormant buds.

"Another curious circumstance connected with these plants I have noticed as regards the habits of what is termed "the white scale," a species of Aspidiotus. This pest, as is well known to all plant growers, confines its attacks almost exclusively to the under sides of leaves, where it often escapes the vigilance of the gardener. In the case of one of my plants of R. Edgworthii, from a nursery, it had established itself on the upper surface along the midrib, and on the depressed veins caused in this species by the bullate areoles of its beautiful leaves. To this locality it had evidently been driven by the thick tomentum which covers the stems and under sides of the leaves, and so prevents its attaching itself to the surface of the leaf itself. Here, unfortunately for its safety, it at once strikes the eye and is readily destroyed.

"The very young leaves of several of the species have suffered also from the doings of the larvæ of one of the Tenthredinidæ, I think an Athalia, which in summer attacks almost all plants under glass, and seems a general feeder, eating the leaves half through from the under side. This I will endeavour to rear, notwithstanding the almost irresistible inclination one naturally feels to be rid of it, and to ascertain what it really is."

A paper by Mr. S. Stone was read, entitled

Facts connected with the History of a Wasp's Nest; with Observations on Ripiphorus paradoxus.

In this paper Mr. Stone shows that having taken a nest of Vespa vulgaris, and having destroyed the entire community, he placed it in an apartment near to a community of the same species, which he had previously obtained; that members of the latter community at once proceeded to feed the grubs in the stranger-nest, and to construct a covering, which they completed in about a week. At the end of three weeks Mr. Stone found, to his surprise, that the cells were occupied with eggs and pupæ in every stage of growth; and as by that time all the eggs and pupæ in the nest, when first taken, must have been either full grown and spun up, or must have become perfect wasps, it was clear that all those observed in the cells must have been deposited subsequently to the nest, having been taken.

As none of the wasps driven out of the nest when this excommunication took place were queens, all being of the ordinary size of workers, Mr. Stone concludes that the eggs were those of workers, and as the whole brood which were subsequently developed were workers, it appeared that the results went partly to confirm Dr. Ormerod's observations, published in the 'Zoologist,' last August, namely, that workers deposit eggs which produce workers; Dr. Ormerod, however, obtained males as well as workers from a nest which was deprived of its queen. The latter writer having removed a nest from a shrub, found that three or four straggling workers reconstructed the nest, and both eggs and grubs were found in it; this nest was also removed, and a third was constructed by a few workers and eggs deposited in the cells; not one wasp being observed or found in the nest. Mr. Stone also found numbers of Ripiphorus paradoxus, a beetle parasitic in nests of Vespa vulgaris: the discovery was too late in the season for Mr. Stone to observe in what manner the young grub of the beetle obtained its nourishment; one fact was, however, noticed,—that Ripiphorus is covered in the cell of the wasp, in the same way as the pupa of the latter insect, by a silken convex cap.

Mr. Smith observed that doubtless every entomologist was acquainted with the details of Professor Siebold's work on 'A True Parthenogenesis,' in which the wonderful but simple means were detailed whereby the eggs of the queen bee were rendered capable of producing fertile females and workers; and, having read Dr. Ormerod's highly interesting paper on the Vespidæ (Zool. 6641), in which the author apparently proves that worker wasps can and do deposit eggs which develope workers and also males, and having heard in Mr. Stone's paper a strong corroborative case described, he naturally was led to ask the question,—Is the wasp, then, differently organized to the honey-bee? This question he was not in a position to answer.

It did appear, as a thing proved, that worker wasps, without a possibility of copulation, were capable of depositing eggs, and that those eggs developed both workers and males. That no copulation could have taken place was proved by the fact that not a single male was developed until six weeks later in the season. Another question forced itself upon his mind, as to whether parthenogenesis, as detailed by Siebold in reference to impregnation, applied equally to the social Vespidæ as to the social honey-bee; in fact, was it a general law applying to all social hymenopterous insects? The details before the Meeting appeared to give an answer in the negative.

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Entomological Society's Report concluded.

Mr. Smith further observed that, for his own part, he could not, as the question stood, but think that there had been some defective observation, and that further and more close attention to the subject might possibly prove this to have been the case. Dr. Ormerod got over the difficulty by supposing some of the small queens—or large workers, as they in fact are—hybernated throughout the winter, being, like the queens, impregnated the previous season; but to this Mr. Smith could not assent; it was contrary to the observations of all previous observers. He had himself found, during his researches the last twenty years, great numbers of hybernating wasps, but all had been the large queens: he had never known of a single worker having been thus discovered. If worker wasps hybernated, and were capable of continuing their kind, whence any necessity for queen-wasps at all?

Specimens of Marine Natural History.

MR. WILLIAM LAUGHRIN, of Polperro, Cornwall, who is well known for the superior manner in which he preserves Fishes, Crustacea, and other productions of the sea, is ready to supply Naturalists with those objects, or others found on the Cornish Coasts. The manner in which his skeletons of fishes are set up is recognised at the British Museum and other public institutions.

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To Entomologists.

MESSRS. STEVENS beg to announce that they will sell by Auction, towards the end of January, a valuable Collection of British LEPIDOPTERA and COLEOPTERA, principally collected in the neighbourhood of Lewes, and mostly in fine condition; together with a first-rate MAHOGANY CABINET of forty-eigh, Drawers, corked and glazed in three tiers. Catalogues are preparing, and will be ready one week before the sale.

38, *King Street, Covent Garden,*
December 21, 1859.

To Egg-Collectors.

MR. STEVENS is instructed to announce for sale by Auction, probably in the month of May next, a portion of the general DUPLICATE EGGS collected by the late JOHN WOLLEY, jun., Esq. A Descriptive Catalogue will be printed some weeks previous to the Sale, of which due notice, in the 'Zoologist,' 'Athenæum' and other papers, will be given.

38, *King Street, Covent Garden,*
December, 1859.

E. NEWMAN, PRINTER, DEVONSHIRE STREET, BISHOPSGATE, N.E.